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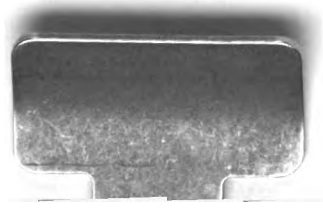
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MOTOR

An Illustrated Monthly Magazine Devoted to Motoring

Vol. 1. No. 3 DECEMBER, 1903 Price, 25 Cents



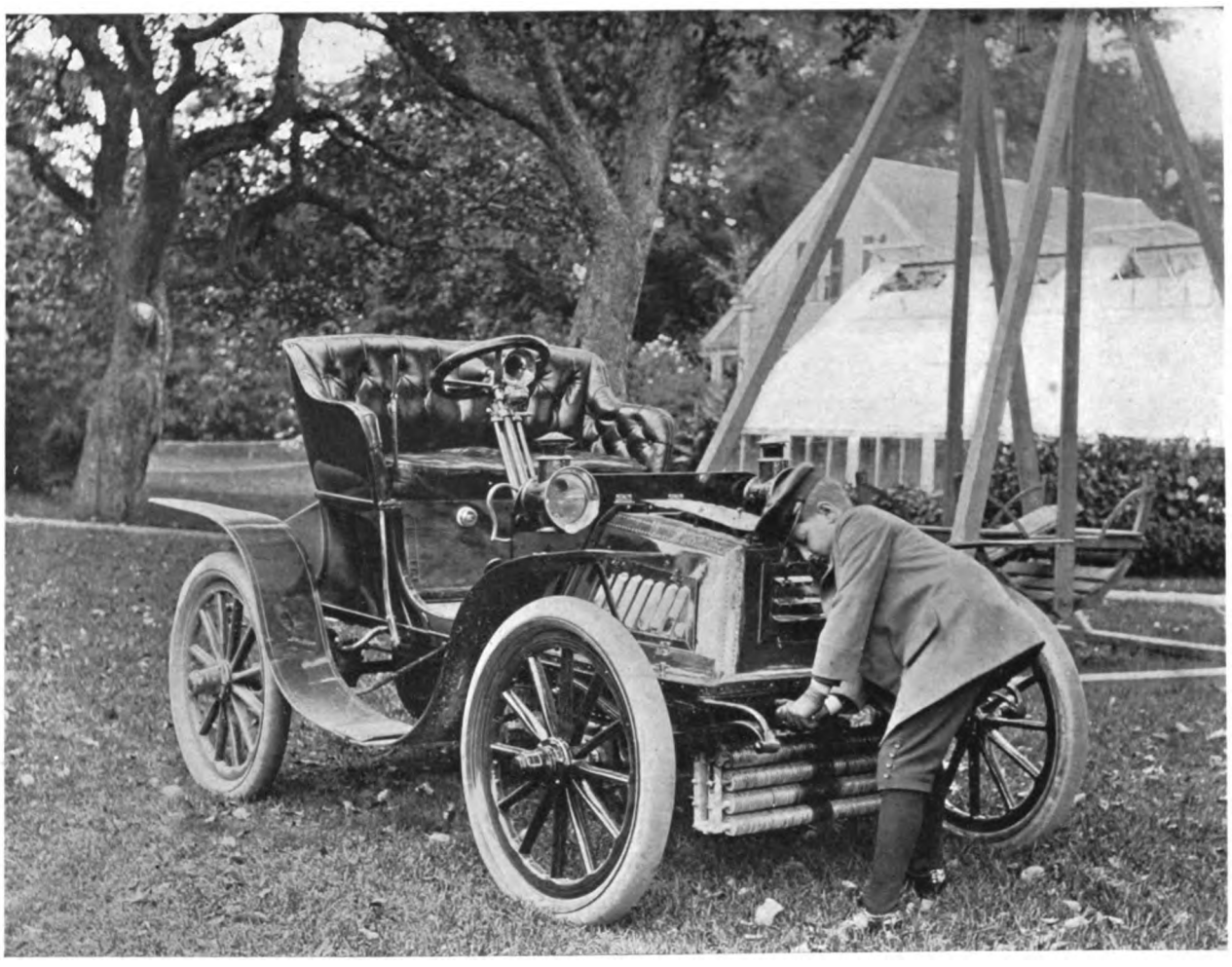
Photo by Lazarnick

AT THE SOLDIERS AND SAILORS' MONUMENT ON RIVERSIDE DRIVE, NEW YORK CITY

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THE YOUNGEST LICENSED OPERATOR

Theron Curtis, aged ten, of North Attleboro, Mass., makes undisputed claim to the honor of being the youngest and smallest licensed operator of automobiles in the world. By automobiles, Master Theron means real automobiles, disdaining the use of such toy machines as have been specially constructed for other very youthful chauffeurs, and preferring his father's thousand-pound touring car, which he handles with the skill of a veteran. It is said that he is also well versed in the mechanical details of the vehicle, and can effect small repairs with as much sangfroid as a French mechanicién.



MASTER THERON "CRANKING UP"

His first experience was with an electric carriage, and he then transferred his interest to the gasoline machine. Massachusetts, which prescribes no age limit for operators, has just granted him a regular license, duly issued by the Board of Highway Commissioners. Of this he is very proud, and since coming into possession of it he has run up a mileage record which exceeds many established by his seniors. Moreover, not a single accident has marred the accomplishment.

To prove the simplicity, ease, and perfect safety of automobile operation under reasonable conditions, no more cogent argument than the perfect assurance with which this child of ten runs a heavy machine could well be conceived.

Nevertheless, because one youth is capable it does not follow that all others will be.

THE 1903 ENDURANCE RESULTS

The executive committee of the National Association of Automobile Manufacturers decided to issue first-class certificates to all of the twenty-five contestants that completed the endurance run.

Because of the condition of the observers' records, due to the extraordinary weather that was experienced on the run, it was agreed that no satisfactory settlement, based upon the original plans for the contest, could be made, and it was evident that nothing short of a suspension of the rules could result in satisfaction to the public and the participants.

It was therefore voted to give a first-class certificate to the maker of each car which reached Pittsburg, and gold medals to certain cars the performances of which were especially meritorious. A list of gold-medal winners will be announced after the December meeting of the executive committee.

General satisfaction with this action is expressed by all concerned, and it is believed by every one familiar with the facts that, in spite of the circumstances which had first made it seem likely that the run would be a failure, it was after all the finest testimonial of the endurance and practicability of American automobiles which could possibly have been obtained in any manner.

What will be attempted another year is only a matter for conjecture.



MR. AND MRS. A. L. RIKER

Who "enjoyed" the run so well that they also returned from Pittsburg in their Locomobile.

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SOLVING A GREAT PROBLEM

By President W. E. Scarritt, A. C. of A.

A year ago in November the writer made a prediction at one of the experience meetings of the Automobile Club of America, that there would be maufactured and sold in the United States, during the year 1903, 35,000 self-propelled vehicles. Some of his good friends of the press expressed themselves as somewhat skeptical of the prophecy, and looked upon it as the vagary of an enthusiastic dreamer.

Prophecy has now become history and the prediction of a year ago does not now seem so far afield. The Automobilist is a pioneer, and he is multiplying.

The fate of the pioneer in every movement, whether it be social, political, or industrial, is not an easy one. The centrifugal and centripetal forces of society, like the law of gravitation, are constantly at work. It is well that this is so, otherwise the resultant forces of this mundane sphere would soon be sadly out of joint.

I would scarcely dare to put on record my belief as to the revolution which is to be brought about by the coming of the motor car. Converts to its faith are made first in individual cases. Later, "a nation" of believers "is born in a day."

To illustrate: Walking down Broadway, a man of affairs, one whose name stands high on the roll of honor in the business world, had his attention attracted to a splendid specimen of a motor car in the shape of a business wagon. It was moving along quietly, carrying double the load and at twice the speed of a horse-drawn delivery wagon in the same street. He pointed to the motor car and said:

"There is the great field in the future for the automobile."

Prior to this he had had little faith in the self-propelled vehicle. If every truck and horse-drawn vehicle in New York City could be replaced by a motor car, what would it mean?



WINTHROP E. SCARRITT, PRESIDENT OF THE A. C. OF A.

First, that the space now occupied by horses would be vacant; second, that the streets would be clean; third, that the motor car would carry twice the load at double the speed.

This would be equivalent to having clean streets four times the width of our present streets. If ever there was a city under the sun with narrow, congested, up-torn streets that needed salvation from itself, surely it is our metropolis.

The public do not know, they cannot appreciate that the self-propelled vehicle is to solve the great problem of over-congested traffic in our streets. However, it is true, and the day of our emancipation draweth nigh. Education will take the place of ignorance and superstition and over-conservatism. The practical American mind will awake to the situation and then the deed will be accomplished.

The two factors not yet solved in the automobile problem are the cost of maintenance and the reliability or unreliability of the vehicle.

Nevertheless, the endurance run to Pittsburg, which will be memorable in the history of the industry, has gone far to establish the strength and reliability of the cars engaged therein.

When twenty-five cars out of thirty-four survive the horrors of that awful journey through continuous storms and lakes of mud and water and literally over mountains of difficulty, we must take off our hat to the American car; not only to the American car, but to that heroic little company which stayed by their cars to the journey's end.

The "Mud Larks," as they facetiously named themselves, and here's to them, are made out of splendid Anglo-Saxon stuff or the Pittsburg run so successfully conducted by the National Association of Automobile Manufacturers would not have passed into glorious history as it has.

These heroes of the motor car, for peace hath her conquests no less than war, have done much for the industry and deserve the recognition and thanks of every loyal automobilist the world over.

AMERICA'S PIONEER CLUB

At the annual election of the Automobile Club of America, held at the club rooms in Fifth avenue, New York City, the regular ticket was elected without opposition. Reports of standing committees were approved, and a vote of thanks given to the retiring president, Albert R. Shattuck, who held the chair for three years.

The membership of the club is now 464, 395 of whom own 500 automobiles, worth about $1,500,000.

The club is affiliated with the American Automobile Association, and represents in America the Automobile Club of Great Britain and Ireland, Automobile Club of France, Auto Club of Belgium, Auto Club of Switzerland, Deutscher Automobile Club, Austrian Automobile Club, and the Automobile Club of Turin.

The officers elected for the coming year are:

President, Mr. Winthrop E. Scarritt; first vice-president, Henry Rogers Winthrop; second vice-president, Harry Payne Whitney; third vice-president, William K. Vanderbilt, Jr.; treasurer, Jefferson Seligman; three governors to serve three years—Messrs. Dave H. Morris, Sidney Dillon Ripley and Albert R. Shattuck; and two governors to serve one year—Messrs. Harlan W. Whipple and Arthur Iselin.

President Scarritt has named the following chairmen of standing committees: Good Roads, Albert R. Shattuck; Technical, Dr. S. S. Wheeler; Racing, O. W. Bright; Laws and Ordinances, J. P. Dill; Membership, H. Rogers Winthrop; House, H. W. Hedge; Contest, John A. Hill; Exhibition, Gen. George Moore Smith; City Pavements, Jefferson Seligman; Library, A. R. Shattuck. Mr. Clarence Gray Dinsmore is placed at the head of a new committee on foreign relations and Courtlandt F. Bishop at the head of a new committee on maps.

THE CHICAGO AUTOMOBILE CLUB

The Chicago Automobile Club is now located at No. 243 Michigan avenue, in an old-time mansion owned by Mrs. Hetty Green. Officers for the ensuing year: President, John Farson; Dr. F. C. Green, first vice-president; W. G. Lloyd, second vice-president; J. W. Duntley, secretary; and James A. Charter, treasurer.

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BRANCH ROAD BUILDING

By Isaac B. Potter, President of the American Motor League

Ten years ago many of us were trying to persuade the American farmer that the hard, smooth, permanent road surface was an essential part of his agricultural outfit; that to get on in the world he must have good going. To-day there are filed in the highway departments of three important states farmers' petitions for several thousand miles of good roads more than these states are ready to pay for.

The money appropriations are not only insufficient to meet these demands, but the technical force employed by the states to direct the work of road building are confessedly inadequate for the great task in prospect. That more petitions have not been filed is due to the holding up of those now in hand, and in the nature of things many years must elapse before the farmers' demand for better roads can be satisfied under the present system.

That the interval may not be altogether too tedious suppose we ask ourselves this question: Why should not the farmer be encouraged to make and maintain the roads —especially the branch roads—which skirt his immediate dooryard?

There is nothing difficult or mysterious in the art of making a macadam road. Macadam himself taught it to the farmers of England; the cantonniers who keep the roads of France in their superb condition are peasants of the republic, and the American farmer who studies the adaptability of soils, the rotation of crops, and the use of improved machinery by which his labor is lightened and made profitable, is well qualified to establish his place as the best road maker in the world. He is the one man whose interest will impel him to do the work well; he is able-bodied, practical, and thorough, and, best of all, his location, equipment, and the frequent proximity of good material will enable him to construct a macadam road at half the cost paid for similar work under the present system.

I am not to be understood as claiming that the average farmer, without supervision or instruction, can be depended on to make a good macadam road; much less could he safely undertake, without such supervision, the more difficult work of drainage, culverts, and other structural problems which now and then demand the attention of an engineer; but most roads do not require sub-drainage, surface drainage is easily taken care of and culverts are entirely apart from the surface-work of which I write.

A macadam road is an ordinary earth foundation covered by a compact crust of broken stone. A broken stone layer, sixteen feet wide and six inches deep, calls for about 1,900 cubic yards per mile. Field stone and the boulders taken from useless and abandoned stone walls are frequently of excellent quality and when not all of good quality the softer stones can be placed at the bottom where they escape the wearing and grinding action of heavy wagon wheels. At least one good crusher should be owned by every town and operated under direction of the highway officers.

A good crusher driven by eight horse-power will turn out from 40 to 80 cubic yards of two-inch stone per day of ten hours, and will cost from $400 upward according to quality. The same engine that drives a threshing machine will operate the crusher, and an excellent horse roller can be had at a moderate price. All these machines are so simply constructed that any man with ordinary intelligence, after he has acquainted himself with the different adjustments, will, with very little practice, be able to run them well under all circumstances. Little else is needed.

The advantages of wide tires, as better to support loads and less injurious to the road surface, should not be lost sight of, and a vigorous propaganda to popularize this important factor in highway maintenance would doubtless be productive of much good. Not only the farmer and other road users should be gone after on this score, but the wagon builders and wheelwrights should be led to modify their product to fit modern ideas. It might even be well to seek legislation by which minimum tire widths for given loads would be prescribed.

A simple, practical handbook of instructions and specifications, so written that a man may run and read, giving the rule and the reason for each step in the making of a good road surface, and, my word for it, we shall then have done much not only to hasten the work which moves so slowly, but to demonstrate that the expenditure of $1,800 to $2,000 per mile will under many conditions produce as good a road as has often been made by hired contractors at three times that figure.

HIGHWAY PROGRESS

The Automobile Club of Namur and Luxembourg will experimentally tar a kilometer of the Namur-Dinant road, near Wepion, Germany.

A French motor paper has secured permission to tar the Avenue de la Grande-Armée, in Paris, as an experiment, and will do the work at its own expense.

The Departmental Committee on Highways, of England, has recommended that certain main roads of that country be selected as "national roads," and improved and maintained at the general expense under a special department of the government.

An English inventor has undertaken to solve the skidding problem by providing small rotating brushes, which can be lowered when necessary to sweep the roadway immediately in front of the driving wheels of an automobile. The effectiveness of the plan does not seem to have been demonstrated in practical tests.

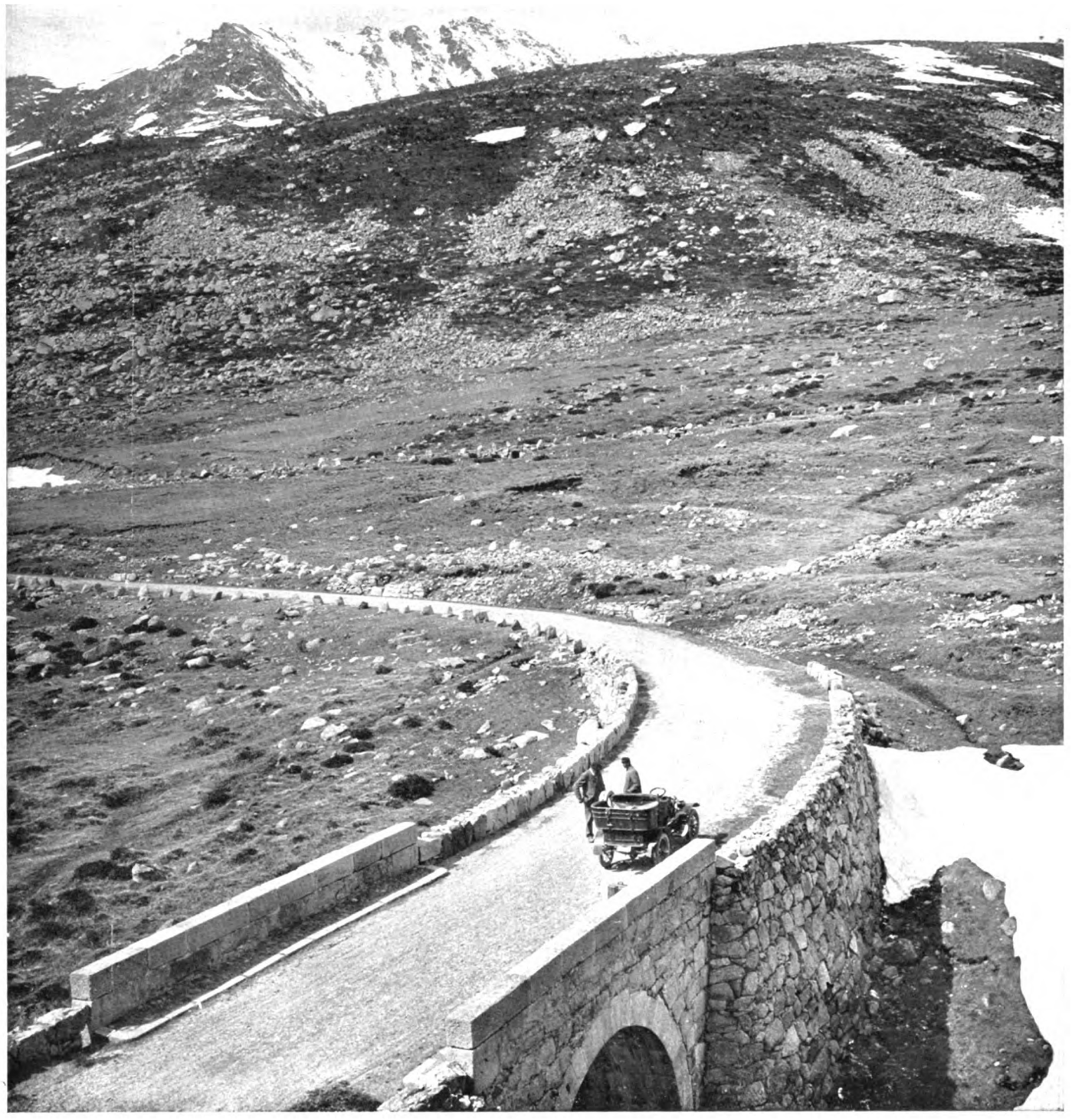
An English manufacturing concern has under construction some unique cars for the Rhodesian Railway Company, Ltd., of South Africa. These vehicles, which are primarily inspection cars, built to run on rails laid with a three-foot gauge, can be run on common roads when required. Power is furnished by six and eight horse-power hydrocarbon engines, and a gear giving two speeds forward and a reverse will be fitted. With two passengers and a driver, a speed of forty miles an hour on rails is expected.

Westrumite, a patented compound, is coming much into use in Europe as a road-improving material. This mixture, the composition of which has previously been kept a secret, is said to consist of crude petroleum and tar, treated with ammonia and caustic soda. The emulsion thus formed is soluble in water, and one gallon of it to nine gallons of water forms a proper liquid for a first application, after which occasional sprinklings with a 5 per cent. solution keep the road in good condition. The expense of a 10 per cent. treatment is said to be about half a cent a square yard.

From California comes the claim, substantiated by several hundred miles of roads and streets that have been tested a number of years, that the crude petroleums of that state are much superior to tar for road surfacing. It is asserted that the cases in which oil has failed to lay dust more than temporarily have been due to the use of petroleums of a paraffin base. California petroleums are asphaltic, and it is declared that they bind a road surface into a tough stratum, resembling asphalt pavement. A mile of 16-foot road requires from 10,500 to 16,800 gallons for a first application. After a crust is formed, 1,000 gallons are sufficient for repairs.

J. A. Brodie, City Engineer, of Liverpool, England, has rendered an interesting report on dust-laying experiments that were carried out near that city during 1902 and 1903. In the course of the experiments, hot creosote oil, cold creosote oil, creosote oil and pitch, creosote oil and resin, creosote oil and tallow, hot coal tar, cheap waste oil from coal tar, common petroleum, and Texas petroleum were tried. Crude Texas petroleum (of asphaltic base) was found to be the most enduring; coal-tar waste the most economical; creosote and resin the cleanest, and creosote and tallow the least odorous. One gallon to eight square yards was the average application, and the duration of an application averaged three weeks, with a tendency to extend as the road became impregnated with the material used.

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TOURING IN THE PYRENEES

The good roads of France are far-reaching, even existing in the mountainous sections. No wonder automobilists find pleasure in touring over these hard and smooth highways in the construction of which Napoleon figured to no small degree. A good conception of the roads is given in the above photograph, taken in the Pyrenees not far from Perpignan, in the southeastern part of France near the border line of Spain.

MM. C. and L. Boulanger this year accomplished a tour from Perpignan to Paris in a De Dion-Bouton car, and the following extract from their experiences will give an excellent idea of the adventures of such a trip.

"Though we made excellent progress in the early part of the journey, we experienced a storm of hail and snow, intermingled with which the lightning added to the hazard of the occasion. It was in the month of May, but we saw the curious spectacle of fields all white with snow. An accident would have been truly a disaster, but the tires drunk all obstacles and the machine survived all difficulties.

"Upon our route we encountered the caravan of Paris-Madrid tourists, who we found had monopolized many hotels, compelling us to make our bed under the stars. They had, moreover, devoured everything in sight, but they certainly served to call attention to the strange Causse de Gramat, one of the most singular regions in France, a sort of sponge pierced by grottoes, abysses furrowed by subterranean rivers and gulfs, of which the most celebrated is Padirac.

"Padirac, of which one can gain no idea without visiting it, is a chapter out of Jules Verne. It is a voyage to the center of the earth. The descent into the gigantic pits by the metal staircase, the galleries lighted by electric lights, the journey of a kilometer upon a sea that the wind never ruffles, and in absolute silence, that hall of great domes, lighted by arc lamps artistically dissembled, the vault a height of nearly 100 meters above our heads—all this transports you to a domain of fantasy and dreams.

"The district of Gourdon is well worth a visit. Everywhere one finds curiosities varied and of real interest. Only the chief town is without attraction. The roads are generally excellent, but along the banks of the Dordogne as you gain the summit of the Causse there is a difference in level of about 400 meters, making it difficult to climb."

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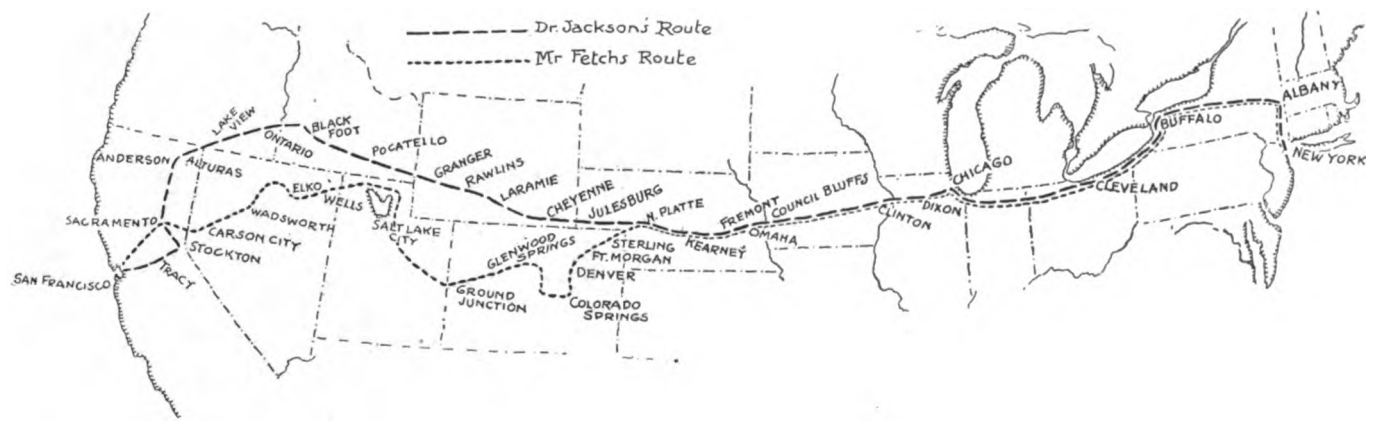
THE GREAT TRANSCONTINENTAL RACE

Widespread interest in transcontinental touring has resulted from the announcement that MOTOR next Summer will promote a great race from ocean to ocean. It is assured that there will be many candidates for honors in this notable journey from coast to coast. Numerous inquiries are being made regarding details, but the itinerary will not be decided upon until the entire subject has been considered by a general committee consisting of officers of the national associations and the leading automobile clubs, and the manufacturers, the desire being to have the event run on lines acceptable to the majority of those most concerned.



THE FIRST ONE

Naturally, much of the basis of the entire plan can be obtained from what has been accomplished by the quartette of hardy pioneers who have negotiated the trip from the placid Pacific to the turbulent Atlantic.



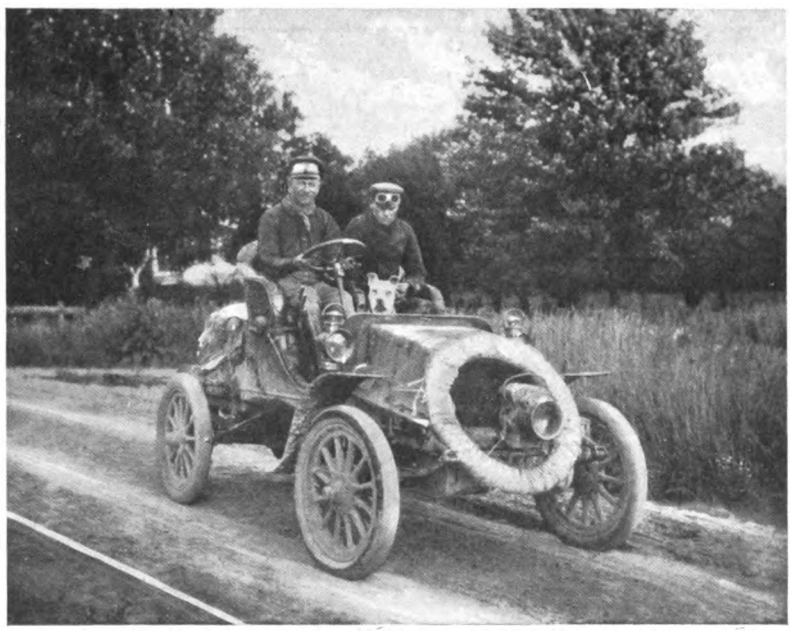
With the opening of the outdoor season of 1903 the ability and capacity of the American motor-driven vehicle to cover unlimited distances in spite of natural obstacles had been proven in so many other ways that the prospect of putting through this greatest of all possible trips in the United States became brighter than ever before.

Looking back now over a thing accomplished in four individual and different ways, it is easy to see that the motor has signally won new laurels on the road through this means. It has certainly made the most of its latest opportunity, for every trip deliberately undertaken was carried through to a successful end. No such high average of performance could have reasonably have been expected even a year ago, and the apparent chances for such a good showing would have been diminished with a closer knowledge of the innumerable difficulties in the way.

Since it is generally agreed among motorists that only a start has been made in this direction, and that the San Francisco-New York course will be the one supreme battleground for next year or longer, the route becomes one of great importance, and the trips already taken become fair indexes of the real situation.

Of the four motor-driven vehicles to make the coast-to-coast trip so far, three have been automobiles and one a motorcycle; the automobiles consisting, in turn, of two regular touring cars and a runabout; all four using gasoline for fuel. It was, perhaps, appropriate that the first to start should have been the motorcycle, since it is better suited to overland travel in the late Spring or early Summer than the heavier vehicles. It can often find a path where only a wider way would suffice for its four-wheeled relative. That it should have made the best net time of the four is not strange, either, since the care which a larger car requires on such a journey has a tendency to extend its running time, and, all other things being equal, the lighter, easier-handled machine can make the best time so long as it is not handicapped by weight carried. Next to start were the two touring cars—about two weeks apart, however—and last of all the runabout. By a curious coincidence, the runabout party left San Francisco the same afternoon the motorcyclist arrived at New York, but for the twenty days from July 6 to July 26 the three automobile parties were at different points on the road across the continent.

George A. Wyman, the motorcyclist and a native of California, left San Francisco on the afternoon of May 16, 1903, and reached New York on the afternoon of July 6, having made the trip in 50 days elapsed time, with an actual riding time of 39 days. His is the distinction of being the first person to cross the continent on a motor-driven vehicle of any description—a "California" motorcycle of 1½ horse-power, weighing ninety pounds.

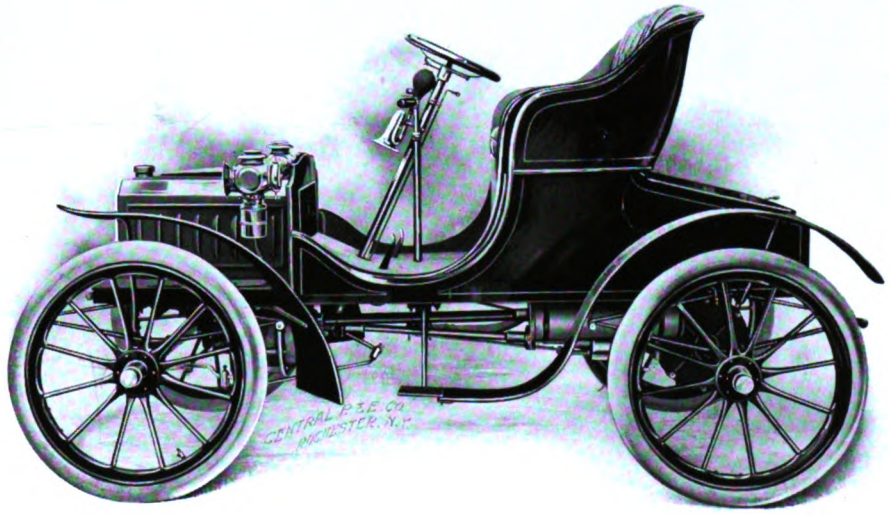


DR. JACKSON ON AN OHIO ROAD

The route taken by Wyman to the Missouri river was the usual one from San Francisco to Ogden, Utah, along the Central Pacific railroad and the Union Pacific to Omaha. The essential difference between the manner of making this trip and the three others, and the one thing which detracts somewhat from its practical importance, was the considerable amount of riding Mr. Wyman did on the railroad

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tracks both east and west. He trundled his mount through eighteen miles of snowsheds in the Sierra Nevada mountains, and even in Iowa and Illinois divided his riding between the railroad tracks and the bottomless prairie roads, neither of which a four-wheeled vehicle could do, except for a short distance, as was done at times in the October Endurance Test to Pittsburg.



MR. FETCH IN THE GREAT AMERICAN DESERT

The second party to essay the journey was Dr. H. Nelson Jackson, of Burlington, Vt., who had spent the previous Winter in California with his wife. He was aroused by a chance discussion as to the practicability of a touring car making the entire trip, and decided to make the trial himself. He purchased a 20 horse-power Winton touring car, engaged Sewall K. Crocker, of Tacoma, Wash., as chauffeur, and started from San Francisco, May 23.

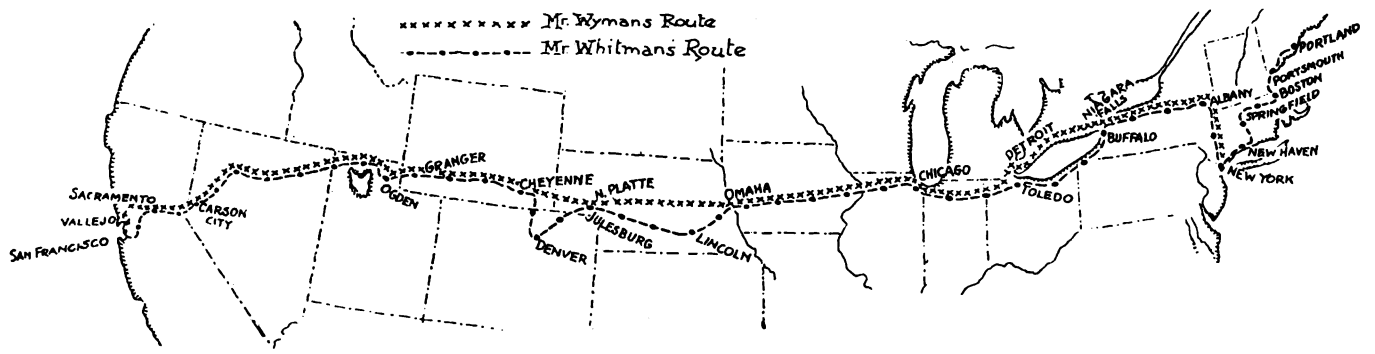
Dr. Jackson's route was to Sacramento by way of Tracy and Stockton, thence due north through the Sacramento Valley to Anderson, Cal., and over the long stage route to Lake View, Ore. From this northernmost point he turned east to Pocatello, Idaho, following the Oregon Short Line downward into Wyoming and the Union Pacific overland route to the Missouri river at Omaha. This party, with the longest mileage of all (nearly 6,000 miles) and the only one to make a detour from the main through route equal to at least a thousand miles of travel, reached New York, July 26, 63 days out, of which 45 days were spent in travel and 18 days were the sum of delays along the way.

This was the first complete transcontinental trip by automobile, and received very little attention except near the conclusion, for the reason that it was a personal affair with Dr. Jackson until a great deal was made of it by others. When, afterwards, some doubt was expressed as to the genuineness of the run, rewards aggregating $25,000 for proof to the contrary cleared the atmosphere, and then the talk subsided.

Most carefully planned and best equipped of the four expeditions, and the one which has brought the most exact and useful information to the automobile public, was the third to undertake the long journey to New York. The Packard touring car, "Old Pacific," operated by E. Tom Fetch, of Jefferson, Ohio, and carrying M. C. Krarup as passenger, started from the Cliff House, San Francisco, Saturday, June 20, arriving in New York August 21, 61 days out.

The route followed by this party, although shorter than that taken by Dr. Jackson, was even bolder, turning southeast from Ogden, Utah, to Salt Lake City, and striking directly across the Rocky Mountains in Colorado. On this route the Continental Divide is higher than on any other transcontinental line, and there are likewise more heavy climbs and precipitous descents. After reaching Denver, via Glenwood Springs, Leadville, and Colorado Springs, Mr. Fetch turned toward the usual overland route via Fort Morgan to North Platte, Neb., where the common stem of the course followed by all to Omaha was entered and continued to the Missouri river.

The fourth and last expedition was the Oldsmobile runabout party, consisting of L. L. Whitman and E. I. Hammond, of Pasadena, Cal., who sent their machine by boat to San Francisco, from whence they started July 6, carrying a letter of greeting from Mayor Schmitz, of that city, to Mayor Low, of New York.





AT LAST THE ATLANTIC

They took the direct overland route along the Central Pacific railroad to Ogden, making many points touched by the Packard party, but from Ogden they followed the Union Pacific railroad and Dr. Jackson's trail as far as Cheyenne, Wyo. Here they made a detour to Denver, resuming their journey via Julesburg to the Platte River Valley, which they were finally obliged to leave on account of the then impassable condition of the roads, making a new way through Lincoln to Omaha. After crossing Iowa and Illinois to Chicago, they took an altogether different route from any of the others to Toledo, Detroit, and by lower Ontario to Niagara Falls and Buffalo.

They reached New York, September 17, and after delivering their message to Mayor Low on the following day, extended their trip to Portland, Me., by way of New Haven, Hartford, Springfield, Worcester, Boston, and Portsmouth, N. H. September 23 was the date of arrival on the seacoast of Maine.

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MOUNT WASHINGTON'S EIGHT-MILE CLIMB



CLIMBS TWICE A DAY

BEFORE the motor-driven vehicle appeared on the scene man possessed the mountain climbing inclination and after he had obtained a self-propelled conveyance the same idea continued to find lodgment in his being. To overcome obstacles is a ruling passion with many, and the motorist is never so happy as when engaged in doing something which none or few others have accomplished.

Mount Washington happens to be the highest lump of earth east of the Rockies, and its 6,200 feet above sea level attracted the eye of a Massachusetts automobilist four years and more ago. From the Glen House site in Pinkham Notch to the summit the carriage road consumes eight miles in making the ascent, though it must be stated that its surface is of fair quality for nearly all of the route. The average grade is one foot in eight and the steepest one in six, with occasional corners of an abrupt sort. Views of scenic splendor are available, but even in a machine which calls for "nothing to watch but the road," the operator will find that road keeping him busy most of the time.



MR. STANLEY, THE PIONEER

Following Mr. Stanley's performance various others found their way to the summit, though it was not until this summer that any motorist had his effort officially timed. All kinds of clocking was given out by the climbers, very often the tales resembling fish stories in auto-



MR. PHELPS, HOLDER OF THE OFFICIAL RECORD

F. O. Stanley, of Newton, Mass., figures as the pioneer climber of Mount Washington, and he did the trick August 31, 1899, with Mrs. Stanley his companion in the steam runabout, which exhausted its supply of gasoline by the time the Half-Way House was reached. A forage for more finally resulted successfully, and then the journey was resumed and completed.



NEARING THE FINISH

mobile apparel. But L. J. Phelps, of Melrose, Mass., with James Baker as accompanist, secured a contingent from the famous Chronograph Club, of Boston, and on August 25 he drove a gasoline car of his own make from bottom to top in one hour forty-eight minutes. A week before this same record-establisher tried and retired to try again on the day whereon he made good.

A couple of days later Dr. Henry Chandler, a Baltimorean, and Ellis Chandler, a Virginian, reached the top in a Stanley "steamer," but did not take the trouble to keep any exact timing. They had toured from Baltimore and could not resist the temptation to try for the summit.

Dr. Austin Hoy, with his mother as a passenger, guided another Stanley up the mountain sides on September 2. He estimated that his actual running time total was one hour forty-three minutes, but this sort of figuring could not be expected to supplant the Phelps mark, which will stand until someone betters his ride and has impartial watch-holders.

R. Kendall, of Goffstown, N. H., was another Stanleyite who reached the clouds only two days behind Dr. Hoy, but he did not apply for the record.

September 13 did not prove an unlucky day for T. P. Driver, a townsman of Mr. Phelps, for he covered the mountain highway in a small powered Oldsmobile in three hours twelve minutes running time. This trip wound up the season's climbing.

Another year an epidemic is anticipated, and the stage drivers, whose antagonism is undisguised, are beginning to see the handwriting on the wall. Several of them are considering the advisability of learning how to run the

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"new-fangled things" which threaten to put them out of business.

It is the prediction that in the near future there will be an automobile line utilizing the carriage road, and its advantage over the horse-drawn vehicles for this difficult traveling are too apparent to call for much argument. Just now the motorist is required to give precedence to the stages, and very properly he must wait at the Half-Way House if a horse-drawn vehicle is coming down the mountain. A meeting on the narrow road, with the team on the outside, is too much risk, and since the road is a toll affair, its directors have unlimited power.



MR. DRIVER ON THE HOMESTRETCH

Automobile road hogs have appeared in the White Mountains, and the unthinking acts perpetrated by some of them explain the antagonism which has been created. Coming through the Crawford Notch the grade is most difficult, and a half dozen times this summer it was necessary to call for horse-drawn aid, whereupon the drivers indulged in a forgivable amount of chaffing at the expense of the motorist, who had to grin and look pleasant and pay the bill.

Gradually the antagonism which has existed in the White Mountains between motorists and horsemen is losing its sting, and a more friendly feeling is becoming apparent. This will improve rapidly next summer.

Besides Mount Washington, there are other mountains offering even more attractive opportunities of achievement for automobilists venturesome enough to essay them.

Mount Hood, in Oregon, has been the spot of one very successful automobile climb by J. B. Kelly, of Portland, and the carriage road up Pikes Peak was climbed by an automobile some time ago.

In this connection, and without any intention of belittling the Mount Washington performances, it is interesting to note that Colorado Springs has for some years been prepared with an amusing jest for the benefit of Eastern tourists, particularly for those from the White Mountains region.

Colorado Springs, as is well known, is the enterprising Western city on the plains at the foot of Pikes Peak, which towers above it some 8,000 feet. This naturally makes the town seem located pretty well down toward the base of things, but, as a matter of fact, even the prairie country thereabouts is at no mean elevation.

Below the railroad station at Colorado Springs is a hollow some 25 or 30 feet lower, and in the bottom of this hollow is, or was, a small and anything but impressive mound some five feet high, neatly marked out with a circle of small cobbles and kept green and well trimmed at the expense of the railroad company. Locally, this mound is known as "Mount Washington," and on top of it is a small signboard which states that "the top of this mound is exactly the same distance above sea level as the summit of Mount Washington in New Hampshire."

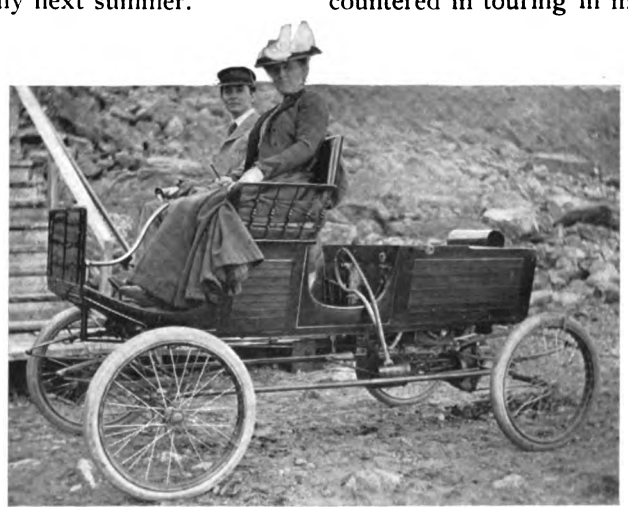


MR. PHELPS UP IN CLOUDLAND

For the ambitious motorist who seeks to conquer mountains with machines, a few points about running an automobile where the going is rough should be of advantage. In the first place, it is necessary that the car be geared low enough to surmount the stiffest grades that are to be encountered in touring in mountainous country.

If the low speed on a gasoline machine is not sufficiently low for severe grade climbing, there is nothing to be done but to replace the driving pinions or sprockets by ones a tooth or so smaller in size.

Because of the comparatively low speed at which an ascent is likely to be taken, it will probably be found necessary to have a fan-cooled radiator, natural draft usually proving inefficient in such a circumstance. With a steam machine, it must be made certain that the burner is of ample capacity to keep the steam up to high pressure.



AUSTIN HOY AND MRS. HOY

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SAN FRANCISCO'S FIRST MOTOR MEET

By The Pacific Scribe

Under the auspices of the Automobile Club of California, San Francisco recently enjoyed the first automobile race meet in the history of that city. The races were run at Ingleside track, November 6, 7 and 8, before numerous and enthusiastic gatherings. The result was an increased interest in the automobile on the part of Californians, and a wholesale dissipation of unreasonable prejudice against the horseless carriage.

The meet attracted people from all parts of the United States, and those that have the interest of automobiling at heart are jubilant over the amount of good missionary work that was accomplished.

"I think that the people now realize that the automobile has come to stay," said President F. A. Hyde, of the Automobile Club of California, after the last race had been run. "And the best result of the race meet will be a general demand for better roads."

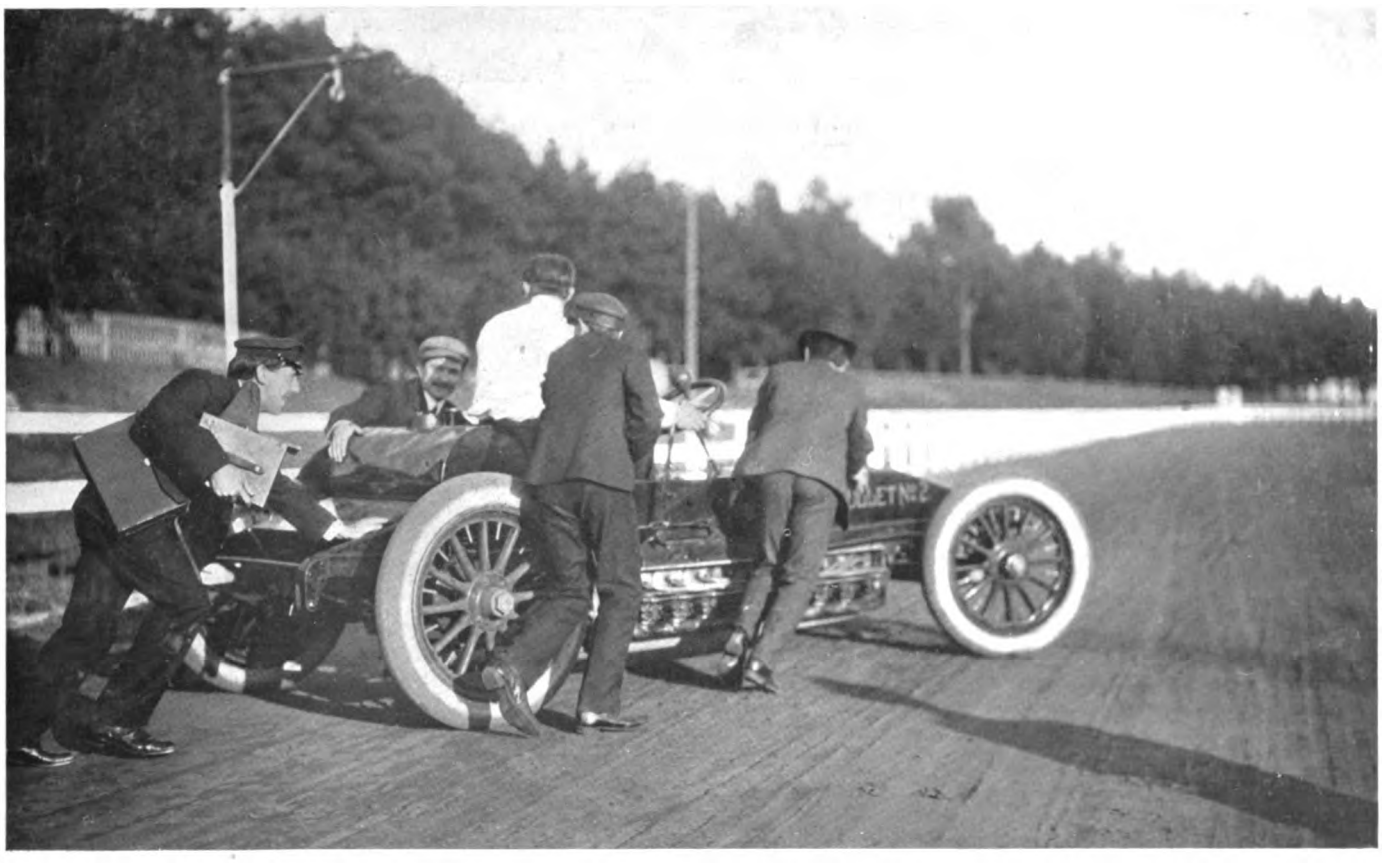
The races were boomed in true California style. On the night previous to the opening day 130 machines were formed in a procession and driven through the principal streets of San Francisco. At the races the grandstand was filled with people and the infield opposite to it was lined with touring cars, in which sat the beauty and fashion of the state. Society showed keener excitement and enjoyment than has been displayed at any horse show in the records of San Francisco.

The street parade had been educational in demonstrating that a hundred and thirty machines could be moved through the thoroughfares as safely as could a body of marching men; and the races were educational in that they demonstrated that high speed is not necessarily dangerous on a clean, open track.



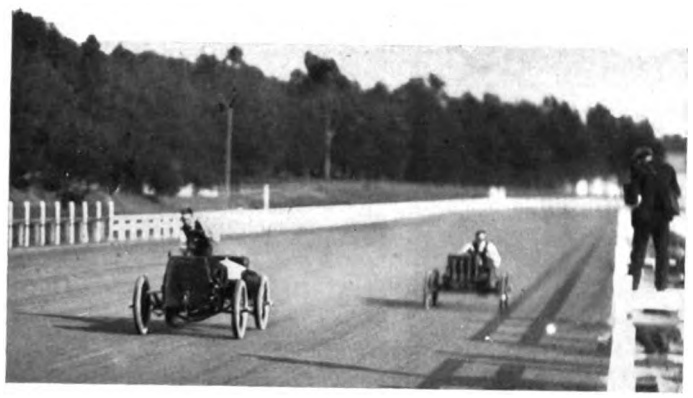
ALONG THE INNER RAIL

Of course, the bright, particular star of the meet was Barney Oldfield, making his first California records. At the third day's race he traveled ten miles in 9:51⅕, completing his swiftest mile in the remarkable time, consider-



PREPARING THE JUGGERNAUT FOR ACTION

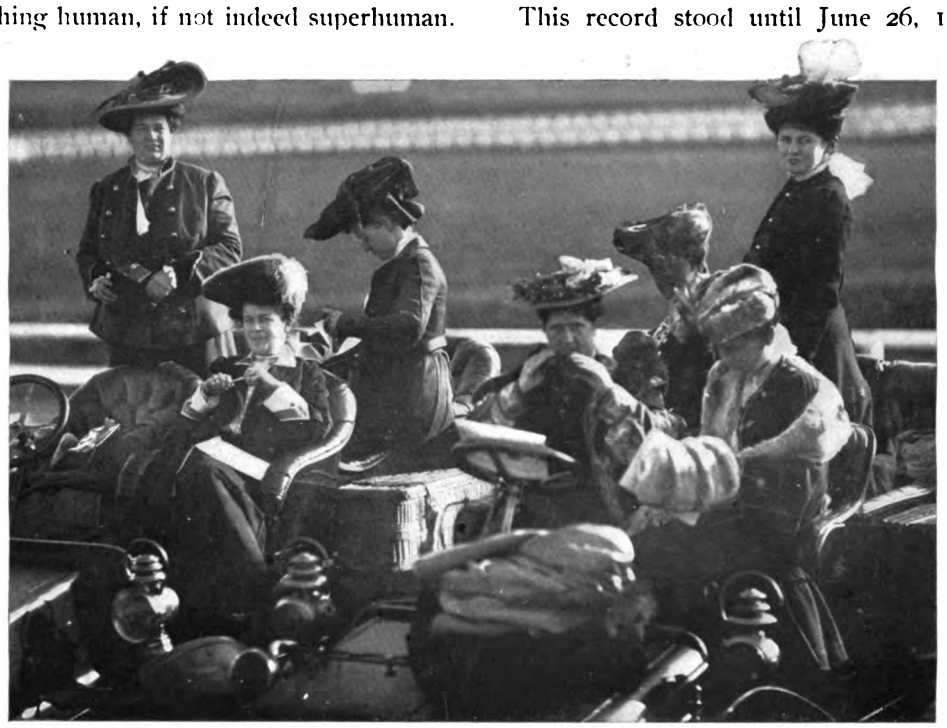
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OLDFIELD IN PURSUIT

ing the heavy going, of 56 seconds. This performance created great excitement. When the announcer megaphoned the intelligence that Oldfield had accomplished his third mile in four seconds less than a minute the ladies in the infield stood on the seats of their vehicles and shouted "Barney! Barney!"

Oldfield's Bullet No. 2, squat as a dachshund and fleet as a greyhound, was surrounded by a thousand people when its operator left the track. The curious seemed to regard it as something human, if not indeed superhuman. But Oldfield did not confine his driving to this big machine. At the first day's meet he appeared as a competitor in a five-mile open event for cars of 1,800 pounds and under, operating a Winton against a White, driven by H.D. Ryus; George Whittell, Jr.'s, Mors, piloted by Pierre Desmet, and another White, in charge of Walter Grothe. Oldfield was soon in the lead, but in the second lap he was passed by Grothe, who kept up a full head of steam and crossed the line a winner in 6:04 2-5, Oldfield coming second in 6:17 4-5.



MRS. "JACK" SPRECKELS, MISS HAZEN AND MISS LANDERS

Oldfield had some trouble with one of the cylinders of his machine, but he made no complaints, and the public went to the next day's race meet with additional zest, wondering to just what extent Oldfield would even up the score. He and Grothe were again competitors, in the fourth race on the card, the conditions being the same as those of the previous day. For the first and only time during the meet the sporting blood of the automobile men was aroused. Oldfield's followers were wagering even money that he would beat Grothe a clear mile in the five mile race. They won. Barney Oldfield was the victor by one mile and five yards. The automobile men say that $5,300 changed hands as a result of this race.

Several thousand dollars were expended for prizes and trophies and the success of the meet was so great that already there is talk of holding another.

The profits of these meets the Automobile Club of California will apply to the betterment of California roads.

At the Los Angeles meet, November 20, Oldfield traveled the mile in 55 seconds, thus cutting by four-fifths of a second his Empire City track record. The champion completed the first circuit in :55 1-5 and the second in :55.

After the performance Oldfield said that he expected even more of the Bullet No. 2 either in California or on the Florida beach.

ALMOST 90 MILES AN HOUR

At the November Dourdan races in France, Duray, with a 100 horse-power Gobron-Brillié, covered a kilometre—3,281 feet—in 26 2-5 seconds. This is the fastest time ever made by a motor vehicle in an officially-timed trial, and is at the rate of 124 feet a second—equivalent to a speed of a mile in 42 2-5 seconds, or 89.69 miles an hour.

This new record is the latest success in a war for the kilometre record that has kept the best automobile racers of Europe busy for the last two years.

The first serious onslaught on the distance was made by M. Serpollet, in one of his famous steam machines, at Nice, France, during July, 1902. His time was 29 4-5 seconds, which stood as a record until the month following, when, at Ablis, France, August 5, William K. Vanderbilt, Jr., brought the time down to 29 2-5 seconds with a Mors.

Then, November 6, 1902, at Dourdan, Henry Fournier took off another fifth of a second with a Mors. This record lasted only eleven days, when M. Augieres made the distance in 29 seconds flat, also with a Mors and at Dourdan.

This record stood until June 26, 1903, when D. M. Weigel, with a Panhard, made a kilometre in 28 seconds flat in Lincolnshire, England.

Within another month, Baron de Forest and the Honorable C. S. Rolls each made kilometres in record time with Mors machines on the Duke of Portland's private course at Welbeck, England. Their times were 26 3-5 seconds and 26 2-5 seconds, respectively, but as the course is somewhat down grade the records were not accorded official recognition.

The next trial of importance occurred July 18, 1903, at Ostend. Rigolly, with a 110 horse-power Gobron-Brillé, making a kilometre in 26 4-5 seconds, which remained as the official record until bettered the other day by Duray.

It is a question how much faster it will be possible to make automobiles go. The ninety-mile-an-hour gait has unquestionably been exceeded for considerable distances.



AMONG THE "PARKERS"

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IN THE GREEN MOUNTAIN STATE

By Dr. A. W. Farnsworth

While Vermont is a rough and rugged state, it presents many attractions to the prospective tourist looking for trips out of the regular and beaten paths, and should not be overlooked in planning trips for the next season.



THE DRIVER AND NOT THE STEED IS THIRSTY

In company with Mr. T. J. Blake, I have toured all over the state, and in no other can more beautiful scenery and attractive drives be found.

In September and October, Vermont is at its best, when the hills and valleys are resplendent with a blaze of Autumn coloring and the roads for miles are carpeted with vari-colored leaves.

The state is divided by a heavy range of the Green Mountains, and it is impossible to get from one side to the other without some long and steady grades. These climbs have been made without difficulty by a light touring car of five horse-power.

The roads, as a rule, are as good as dirt roads will average, and except in a few localities only little sand will be encountered. It is not uncommon even now to find roads that have never before been traversed by a motor car, and the wonder and curiosity of the farming contingency give rise to many amusing incidents. This change from urban to rural surroundings is refreshing and instructive.

There is a leisurely, restful charm about the life these sturdy people live that savors of almost primitive conditions, and the glimpses of sweet domesticity that are occasionally obtained have to be seen to be appreciated. These people are inclined to be prejudiced against anything except horses for locomotion, and have a wholesome respect, and almost fear, for all kinds of motor cars.

One old settler expressed himself, when we stopped to replenish our water supply, that he "didn't mind our gittin' a little water, but he'd just as soon we'd go along afore the pesky thing blew him all to smithereens."

The farmers are anxious to accustom their horses to the machines, and not infrequently will they ask for permission to lead the old mare out and let her smell of it, always ending by saying they'd "just as soon have a hoss."

Local repair shops are becoming more and more numerous, and there are few small towns that do not contain a competent machinist who can attend to any minor accident. Care must be taken to allow for long runs without opportunity to replenish power supply, but a little caution will reduce these items to a minimum.

TOURING IN ELECTRICS

During the last month the first attempts at extended touring in electric automobiles have been made in the United States with considerable success. One machine accomplished a two weeks' tour of New Jersey and Pennsylvania, going from Cranford through Somerville and Flemington, N. J.; Doylestown and Easton, Pa.; Washington, Hackettstown, and Morristown, N. J., and into Cranford again—a distance of over two hundred miles. On this tour, the charging problem was ingeniously solved by taking current from the small 65 to 100-volt exciting dynamo found in almost every electric light station, using a water rheostat made by dissolving a handful of salt in a pail of water. Another vehicle, weighing 3,600 pounds, came from Boston to New York—245 miles—requiring only four rechargings en route. The third machine was equipped with a 68-cell Edison battery and weighed 3,150 pounds. It made the trip from Boston to New York and return, requiring five rechargings each way. All of the foregoing were shod with solid rubber tires and none of them experienced any breakdowns of moment. Other tours with electrics are projected for this Winter.



AMONG THE GREEN HILLS OF VERMONT

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(Copy)

A. W. Farnsworth, D. D. S.

15 Center Street

Rutland --- Vermont, October 8, 1903.

Messrs. B. V. Colbert & Co.,

57-61 Richmond Ave.,

Lockport, N. Y.

Gentlemen:-

I want to give you a little voluntary testimony, in regard to your machine. I purchased one, through your agent here- about two months ago, and since that time, have run it every day that weather would permit. I have been all over this part of the state, and over all kinds of roads; I had never had any experience with a gasolene engine, of any sort, and the first trip I made- after having the car only three days- was over the Green Mountains- a distance of about 70 miles- half of which, was climbing some of the worst hills in the state, making the trip alone, and with no difficulty whatever.

I can gladly recommend your machine to professional men, who have nothing but a general idea of machinery, on account of simplicity, ease of operation, &c.

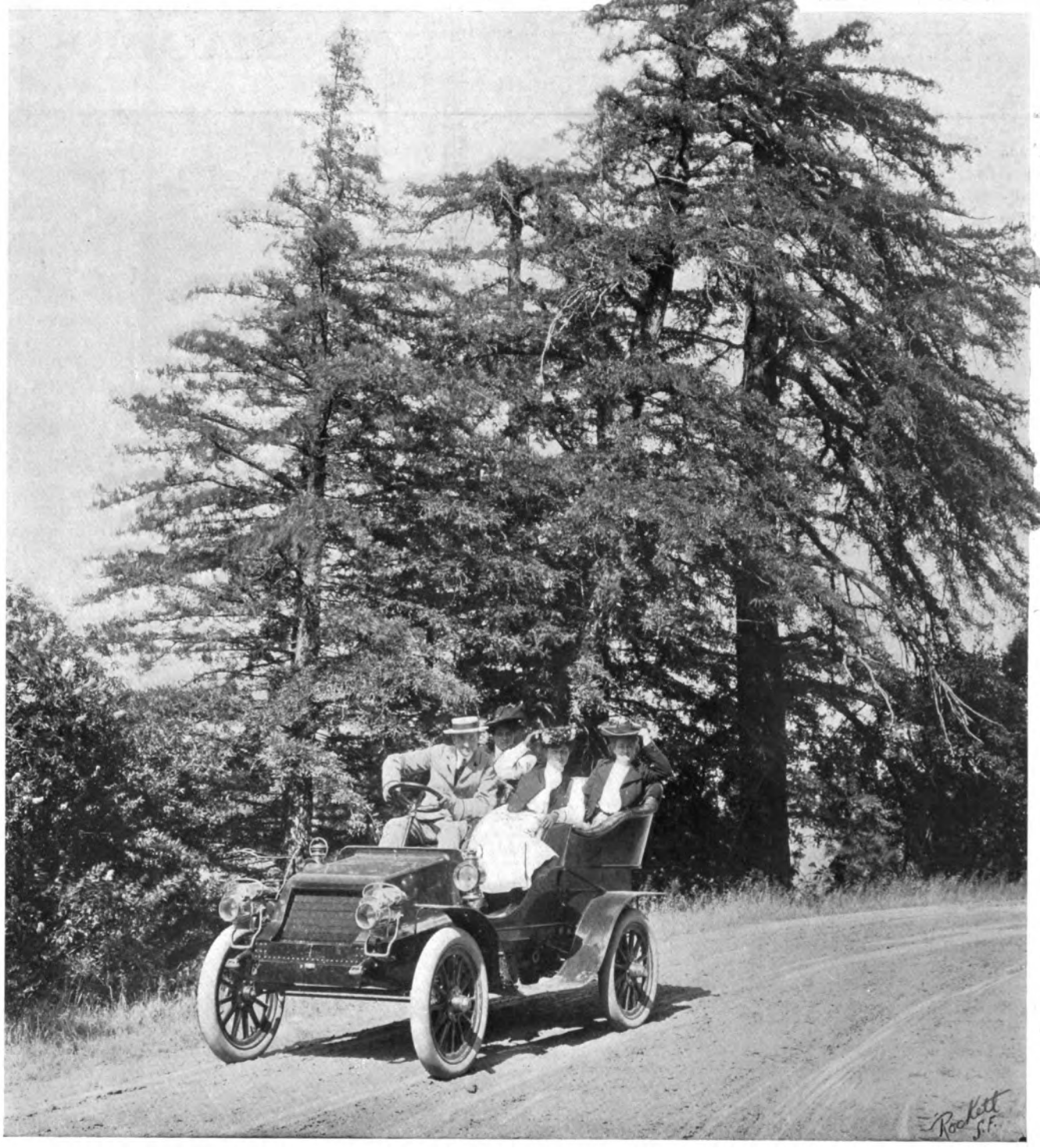
You may use this letter and my name, in any way you like.

Very truly yours,

(Signed) Dr. A. W. Farnsworth,

Rutland, Vt.

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CALIFORNIA A PARADISE FOR MOTORISTS

By the Pacific Scribe

California has been described as a paradise for motorists, and, aside from the matter of a few bad roads, certainly deserves the title. Climatically, the Golden State leaves little to be desired, weather conditions always being such as to conduce to a maximum of out-of-door enjoyment. True, the Winter's rains and the Summer's dust—there is neither Spring nor Fall—may detract somewhat from the fullest measure of happiness, but when a comparison is made with the East, with its months of snow and cold, it must result favorably for the West.

In common with the rest of the United States, but to an even more serious extent, the Western States are handicapped in reaching their fullest development by a lack of good roads. This lack is characteristic of every country that has been settled since the advent of the railway, and seems to be a natural consequence of forcing this development into a section not previously provided with highways for non-rail vehicles. Once railroads are built, there is a tendency, perhaps most pronounced in the Western United States, to depend upon it to the detriment of road building. This is the present condition in California.

There are, however, especially in the vicinity of the cities and larger towns, many fine highways in the West, and in the future California and the other Pacific Coast States will doubtless realize the effect that good roads have upon the internal development of a locality. Then a great and ever-growing proportion, not only of the motoring public, but of the general population as well, will doubtless betake itself to the "land of sunshine."

The advance of western interest in the automobile has already been signalized by the formation of large clubs in San Francisco, Los Angeles, San Jose, Portland, Seattle, and Tacoma. The activity of these organizations is naturally more or less directed toward the promotion of tours and race meets.

W. W. Fordham, of Elmira, Mich., has quietly achieved a feat that rivals the transcontinental automobile trips of last Summer. He left his home city during August, and arrived at Spokane Falls, Wash., on October 28, the distance being about 2,400 miles. With the exception of the boat trip across Lake Cœur d'Alene, the automobile traveled under its own power the whole of the distance. To Thompson, Mont., the Northern Pacific Railway tracks were followed, and the rest of the way was by wagon roads. No fast time was attempted, the average daily run being 40 or 50 miles.

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PILOTING MOTOR DRIVEN RACERS

By Albert Champion

At sixteen years I began paced cycle racing. I am now twenty-five, making nine years during which I have been continuously engaged in competition of one sort and another. My first successes were won on pedal-propelled bicycles. After becoming the paced champion of France, and winning important races in other countries, the motor vehicle, at that time more developed in France than anywhere else, attracted my attention. After a little experimenting, I began racing with a motor tricycle. From this I advanced to the motor cycle, and now I am taking up the automobile.

It is hard to describe the sensations of the driver of a mile-a-minute car so that they will be understod by a person who may never have ridden on such a machine even at low speeds.

While in a race, I think my chief fear is always that some other contestant may collide with me. When running against time, I always feel safer—perhaps because I am an experienced mechanician and have considerable faith in my skill as a driver.

I believe in taking all necessary chances to win, for which reason I rarely shut off power even in the tightest places, and I drive with what is doubtless considerable recklessness. Unnecessary chances I always avoid, and I never speed a machine until I have personally made sure that it is in perfect mechanical order.

Driving a racing car or a fast motor cycle calls for the utmost skill on the part of the operator. The least jerk or involuntary movement of the steering gear while the machine is leaping over the ground at a mile-a-minute is enough to take it clear off the track before the error can be corrected.

Contrary to the experience of some racing men, I am never conscious of much difference between speeds from forty miles an hour up. After the speed becomes so fast, all seems the same beyond it.

In a race, I mount the machine and quickly accelerate it to the maximum: then I pay no attention to any controlling device but that for steering: I do not know whether I am going the miles in 1:20 or in :54; it is all the same. I crouch low and make myself as small as possible to lessen the wind resistance, the hum of the engine and the air rushing past becomes a roar; and then it seems as if the machine stood at the same place and the track spun beneath it like an immense disk—its center away over in the infield and the grandstand on the outer edge, coming around at regular intervals; I feel as if the whole earth were spinning like a top and nothing but perfect coolness and attention on my part will keep it from ending in disaster.

If the track is right, the movement, although tremendously rapid, is smooth. The least uneveness, however, is felt, and even a smooth rise and a fall of an inch in a hundred feet passes under the machine with a sharp jar—for if the machine is lifted and lowered an inch in a hundred feet, it means that it jolts an inch up and down in a second.

When I am running against time I never know how I have done until the trial is over; if there are contestants, I am able to tell something of how I am going by the way I gain or lose on them.

I forget to be afraid of being killed, although I know it is very possible that I may be, and I am most conscious that my living—my reputation as a racing man—is at stake, so, though fully aware that death may reward my efforts, I always find myself thoroughly able, with a philosophy that is perhaps calloused by experience, to carry the performance through with every nerve alert to make it successful and avoid its dangers.



CHAMPION AT CHARLES RIVER

There is no question but what my calling is dangerous. I recognize this to the extent of never having my wife witness a race in which I am entered. I have been injured often, having at different times sustained a broken arm, a broken leg, a broken finger, numerous minor cuts and bruises, and now, as a result of my recent accident at the Brighton track, I am just recovering from a compound fracture of the thigh.

The fastest mile I ever made was done on a 4-cylinder, 12 horse-power, 360-pound motor cycle, on the five-lap track at Charles River Park, Cambridge, Mass. My time was 55⅖ seconds—still the world's track record for the distance on a motor vehicle.

I believe that the limit of automobile speed is still far from reached. With a machine of sufficient power, there should be no difficulty in cutting the mile straightaway record to 30 seconds. In fact, I hope to have a try for this record as soon as I am well enough to run a new car that I hope will be ready for me in time for the Ormond-Daytona Beach races in January.

FLORIDA'S BIG MEET

World's records are confidently expected to result from the big tournament to be held on the Ormond-Daytona beach, Florida, beginning January 27. With the beach in excellent condition, a straightaway course over sixteen miles long laid out, and electric timing devices employed, W. J. Morgan, the originator of the idea, confidently looks forward to the issue of the second annual on the famous course.

C. S. Rolls, who made a kilometre in 26 2-5 seconds at Welbeck, England, is expected to participate in the trials. Chevalier René de Knyff, who was second in the Gordon Bennett race, may be present, and it is hoped that Jenatzy, winner of the Irish event, will also attend. F. A. La Roche hopes to have his new 180 horse-power Darracq completed in time for the meet.

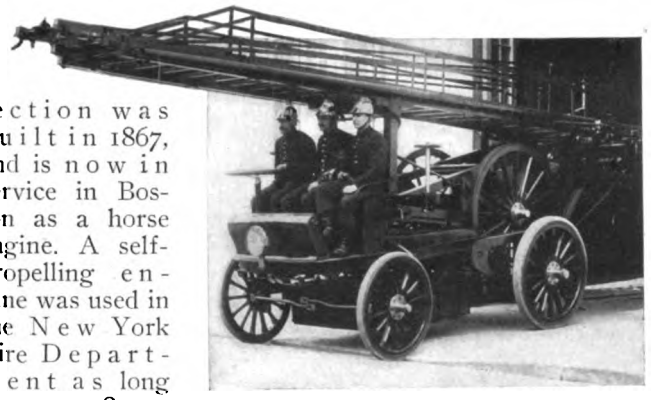
Barney Oldfield, the champion; Tom Cooper, Harry Cunningham, Albert Champion, and other prominent drivers have intentions of going after the prizes.

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AUTOMOBILE FIRE APPARATUS

By Fritz Morris

Motor-driven fire apparatus, though regarded as novelties, up to date, and most modern, are by no means new. The first motor fire engine of which I have any recollection was built in 1867, and is now in service in Boston as a horse engine. A self-propelling engine was used in the New York Fire Department as long ago as 1871, and, while there is none here today, they are in use in Boston, Hartford, New Orleans and Pittsburg, and Portland, Me., has recently added one to its department equipment.



FRENCH HOOK AND LADDER

Nearly all the European capitals possess one or more automobile fire engines, and I have seen those of London, Berlin, Paris and Vienna.

The year of 1871, it may be remembered, was marked by the equine plague, the epizootic, and all the New York Fire Department horses were affected. Directly after the big Boston fire New York City obtained from that city an engine used there during the great conflagration and known as the horseless engine. It was operated in the metropolis for years, very successfully, although in a crude stage, and was known as the first of its kind ever constructed. It was made by the Amoskeag Manufacturing Company, of Manchester, N. H., and was very serviceable at the time, as horses were suffering from the epidemic then raging. Of course, this machine could reach fires much sooner than those drawn by sick horses.

In 1874 four horseless engines were ordered with improved motive power and a great advance over the one formerly used. These engines were known as the steam propellers, and were run by engine companies No. 32, No. 11, and No. 8, with varying success. They were unreliable in Winter, because they would slip on the icy pavements and become unmanageable, nor was the tiller always effective in passing over a frosty place.

These steam propellers were also objectionable on account of frightening horses and they caused many runaways. They could make fast time if the streets were clear, and Engine 32 was known to pass through Pearl and Front streets at something like a two-minute gait when the thoroughfare was free from traffic. But the way was seldom clear in the daytime, and eventually the automobile engines fell into disfavor, to be deprived of their steam propellers and attached to horses.

The automobile engines now in use in Boston have proved very efficient and give satisfaction in nearly every way. Their greatest drawback, strange to say, is a question of speed. Not that they are not capable of fast running, but on a roughly paved street when speeding they are likely to skid sideways.



GERMAN TYPE OF ENGINE

At a fire they throw large quantities of water. Engine 38 has thrown 1,550 gallons of salt water per minute, with steam at 1.20 and draughting. The engineer in charge of No. 38 says: "My favorite running pressure at large fires is from 200 to 260 pounds of water, 120 pounds of steam, two or three lines of three-inch hose siamesed to an Eastman set with two inch, or two and one-eighth-inch nozzle. On long lines I can carry as high as 320 pounds of water, but this, stretched small, furrows in the neck of the air chamber."

The Berlin Fire Department uses a small automobile engine which carries six firemen. This is mounted on an iron frame supporting a metal platform; the boiler is of the usual vertical style and rests closely in front of the hind axle, while the firebox is so low that it almost scrapes the street it passes over. The engine in front of the boiler is vertical, and is fitted with the link motion reverse. The steering is done by two firemen who work a large hand-wheel, while another fireman works the brakes, rings the bell, and operates the guide stick which is carried by all the Berlin fire engines. This is a sort of frame with arms, like our express calls; when the arm on the engine points to the right, it means that the engine will take the first corner in that direction, and so to the left. When going straight ahead the arm is perpendicular.

Paris has a splendid electric automobile "hook and ladder" wagon, carrying six men and the paraphernalia first needed at a fire — ladders, ropes, nets, and a reel of canvas hose. The hook and ladder itself has undergone no modification, except that it is carried instead of being drawn. Rails placed on each side of the carriage, and forming an inclined plane, permit of pulling the ladder to the ground, where the handling is carried on as ordinarily. The electrical ladder, a most important adjunct, consists of a long truck, upon which the large ladder is hoisted almost horizontally by means of an inclined plane or windlass. It is very heavy, weighing 9,150 pounds.



A VIENNA MACHINE

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M O T O R

An Illustrated Monthly Magazine Devoted to Motoring

PUBLISHED BY STAR COMPANY
NEW YORK CHICAGO SAN FRANCISCO

Principal Offices: 150 Nassau Street, New York City
Branch Offices: Chicago: 214 Madison Street
San Francisco: Hearst Building, Market Street

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Subscription, Three Dollars per Year
Cable Address: Motoria. Telephone: 2766 John

Postage free in the United States, Canada, Mexico, Hawaii, Porto Rico, and the Philippines. Postage to other countries, $1.00 per year extra.

Address all business communications and make all checks payable to MOTOR.

Anything connected with the editorial department should be sent to the managing editor.

MOTOR SPEEDING

The Spectacle of a Record-Breaking Age

Greater New York is the metropolis of America. For all, it is at one time or another the Mecca of the country.

The automobile is the dominant factor of the century. Its universal use is plainly foreshadowed. In the conquest of distance, in acquainting the people with the beauties of urban life, and as a health producer, the motor-driven vehicle is admittedly the greatest boon ever invented in the interests of mankind.

New York City is the magnet of the country. It attracts yearly uncountable thousands. These visit the metropolis because it is the metropolis, and it is the metropolis because it possesses many things not to be found in other cities.

One of the greatest sights is the famous Harlem River Driveway—a magnificent stretch of boulevard constructed at a cost of about $5,000,000 for the lovers of blooded horseflesh.

There is no criticism against what has proven an ideal speeding place for the harness performers and a source of enjoyment to the many who have watched the racing.

But the automobile has appeared on the scene. There is just as much delight in driving a motor vehicle at top notch speed as there is in handling the reins over a spirited horse..

If the onlookers enjoy horse racing, the spectacular speeding of the powerful automobiles would be even more absorbing. Furthermore, it must be remembered that no small percentage of these spectators are taxpayers who pay their share in the expenses of state and city government.

If the horsemen have six days in the week during which they can participate in their favorite pastime, is it unreasonable to ask that the motorists, who now outnumber the horsemen, should have opportunity on one day to pilot their high speed vehicles?

The interest of the public in motoring is not to be questioned, and it should be no difficult matter for those in charge to make provision whereby the latest entrant for far-reaching favor, which it already has obtained, could display its wonderful distance-covering propensities.

Since the great annual exposition of the industry will take place at Madison Square Garden in January, a series of speed events on the Harlem River Driveway would add to the worth of the exhibition and give the makers of machines a chance to prove speed claimed and demonstrate durability.

In the not distant future there will come the construction of special roadways limited to motor traffic whereon speed at the limit of horse-power will be permissible. This may appear Utopian, but a score of years ago the present state of the automobile seemed just as remote. Nowadays it is the impossible which becomes reality.

THE BUSINESS VEHICLE

While popular interest in the pleasure and general utility automobile grows at a visibly rapid pace, a no less satisfactory progress is present with the builders of heavy business vehicles. They are increasing, for one thing, in numbers and reputation, and their later attainments are of a thoroughgoing and practical order, more than ever calculated to attract the attention and enlist the support of the large business interests of the country. We already have autotrucks which are not only efficient, but economical as compared with horse-drawn vehicles. They are doing good work in a number of directions—carrying railroad freight between depots in large cities, pulling traction engines and road graders, hauling crushed stone, brick, cement and other heavy materials, and effectually displacing horses where the work is of sufficient magnitude and so placed that the motor can be used to advantage.

The American business man is watching all these developments with conservative interest, and he will decide in favor of the motor wagon on the score of its proved utility for the special requirements of his particular kind of work.

For bulk haulage there is needed a vehicle of as few parts as possible and easily handled controlling mediums, with sufficient weight and strength to withstand the wear and tear of constant rough outdoor usage at all seasons of the year. The acceptable business wagon must be designed with a view to its operation by a man of the average intelligence and discretion, with the reasonable expectation that he can accomplish good, regular and economical work with it. The low speed requirement aids greatly in solving the problem of utility, but good or at least fair roads are necessary for the advantageous use of the heavy commercial vehicles. Their weight and strength carry them through light snow with ease, but deep holes in city streets, sand, soft dirt and the like interfere with their work. So the influence of the ponderous autotruck is with the influence of the light pleasure carriage and the touring car in favor of good roads. The business motor era is dawning; but nowhere is its future so encouraging as in America.

MOTOR AND HORSE

Though the motor-driven vehicle steadily increases in numbers and availibility, according to a Texas paper, "it is not sending the old nag to the boneyard." It is further stated that the horse market does not show the slightest effects of the automobile, the demand being as great and the prices as high as before the automobile came into use. These reports are taken from statistics obtained from 325 cities by the master horseshoers. All this information is extremely gratifying, and it is a satisfaction to know that in its advancement the automobile is not doing injury to any conditions which existed previous to its entrance upon the stage. One might be inclined to imagine that a clever statistician among the horseshoers had juggled with figures in such manner as to make them believe that the day for changing their vocation from the shoeing of horses to the repairing of punctured tires was too far distant to be seriously apprehended.

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MOTORING ON THE SPEEDWAY OF THE METROPOLIS

Why Not One Day in Seven on the Famous Straightaway for Motordom's Growing Army?

It is the belief of MOTOR that automobilists should not now be barred from what might be one of the most famous straightaway courses in the world for motor driving and speeding. The Harlem River Driveway, popularly known as the "Speedway," a magnificent piece of engineering in the metropolis of America, is unfortunately restricted to the use of horse-drawn vehicles.

The driveway is a clear and almost straight road, 100 to 150 feet wide, flanked by sidewalks, and without obstruction or crossing from one end to the other, subways being built beneath it at convenient intervals. It extends from One Hundred and Fifty-fifth street and St. Nicholas place to the west bank of the Harlem River and thence to Dyckman street, a distance of 11,562 feet—considerably over two miles. It is surfaced with selected loam and macadam, forming an ideal track for high speed. The cost to the taxpayers of New York City was in the neighborhood of $5,000,000—over $2,000,000 a mile—for acquisition and construction—and maintenance has amounted to considerably more than $20,000 a year, counting salaries of employees, superintendent, and police officers.

The arguments advanced in justification of this taxation of the public are, to quote from a report of the Department of Parks, that "it has had a beneficial effect upon the industry of breeding and selling speeding and road horses, and upon the manufacture and selling of wagons and harness incidental thereto." It is also urged in the same report that many spectators are "entertained with exhibitions of speed between the best horses."

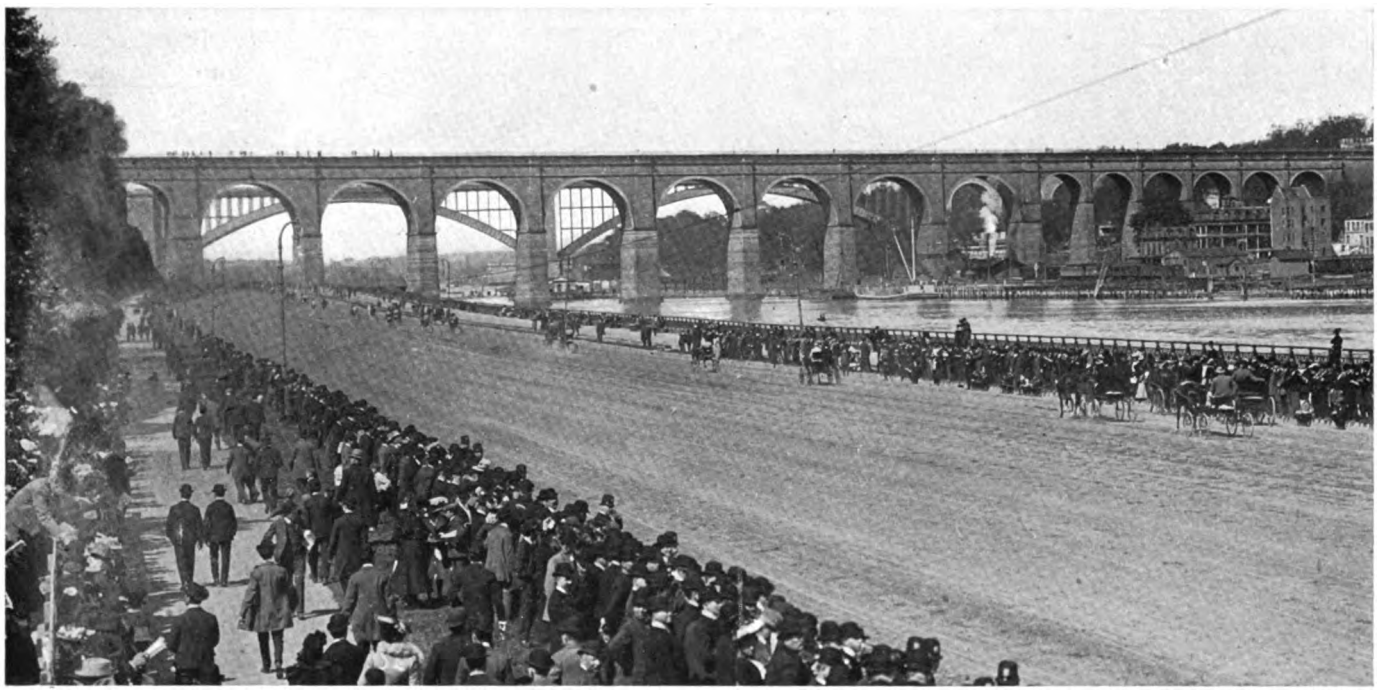
It is admittedly true that benefit has resulted in the manner claimed, and also that visitors to and inhabitants of the metropolis find it very interesting to watch the frequent exciting competitions on the Speedway.

The acts under which the Speedway was built provided that "no portions of such driveway shall be used for any other purpose than for riding by equestrians and *driving of carriages.*" It was further provided that "the Department of Public Parks may make such other rules and regulations as it may deem advisable."

Under these restrictions, the use of the Speedway has been arbitrarily confined to the use of "light vehicles of the class known as buggies, runabouts, surreys, and other light vehicles adapted to the speeding of light harness horses, seating no more than four persons and drawn by one or two horses." What is known as a "light road cart" is also permitted on the driveway during certain hours of the day. These regulations, other than the general provisions of the state enabling acts, have been formulated wholly by the Park Commissioners.

Within the last year the question has several times arisen as to whether the Park Commissioners are not showing an unfair partiality in their exclusion of automobiles from the Speedway. During the time that has elapsed since the Speedway was first projected, motorists assert, with good reason, that the automobile has risen from the rank of an unimportant curiosity to a foremost place in the world of transportation, and it is not difficult to conclude that were such a public work as the Speedway now planned, it would fail to secure popular support unless some provision were made for the benefit of the constantly increasing portion of the public that makes use of the new means of locomotion.

Careful estimates have shown that considerably less than 100 vehicles a day, if averaged throughout the year, make use of the Speedway. This being the case, if the Speedway were turned over for one day a week to the exclusive use of motorists, and as many as 100 were to avail themselves of the privilege, it is argued that this



average number of users would be properly entitled to a one-seventh use—that is, to one day a week.

As to the argument that the spectacle provided by horse racing conduces to the entertainment of the public, the same assertion, say motorists, would apply with greater force to automobile driving and racing on the Speedway.

While the Speedway is not straight for its entire length, and in many places deviates from a dead level in a varying degree, at least a kilometer course which would be practically level could be laid out upon it. This would be terminated by stretches of ample length for flying starts and for stopping vehicles runing at high speed. The records made would immensely stimulate the cause of automobilism in the United States, the more so as the industry's chief handicap has been the lack of good roads in public places on which to demonstrate machines.

It might be argued by horsemen that the state law would interdict the use of automobiles on the Speedway. In answer to this the motorist would reply that the act allows "driving of carriages." This expression could be held to apply to automobiles, and its interpretation would doubtless rest with the Park Commissioners.

The present time is considered most auspicious for an agitation on the part of automobilists toward a modification of the rules and regulations governing the Speedway. There is pending before the Board of Aldermen a new set of park ordinances, rules, and regulations, on which action will be taken in the near future. As they now stand, the new rules and regulations will not materially alter the established Speedway rules, but should the automobiling public begin an active agitation for amendment it seems certain that the desired good could be effected.

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THE LETTER FROM PARIS

By Monsieur Carbureter

PARIS, Nov. 15.—Commenting on the rate of speed attained by Barney Oldfield at the Empire City track, the "Presse" makes a few "comparisons."

Taking Oldfield's best mile, 55 4-5 seconds, the rate is 64 miles an hour, and it should be remembered that this was done on a circular track. Now, in France, there are no automobile races on circular tracks, and, therefore, the only impression that can be formed of these exploits is necessarily imaginative. But the French critic makes his "comparisons" just the same.

Said critic remarks that, the other day, on the Parc des Princes track (which is, as a matter of fact, circular and adapted for cycles and motocycles only) Fossier, "on a simple motocyclette," went 10 kilometres in 6:25 4-5, one of the kilometres being done in 37 seconds, which gives 97 kilometres an hour!

Well, accepting this remarkable rate of 97 kilometres an hour, the "translation" gives 60¼ miles an hour—but then, the public doesn't stop to make calculations, so the advantage, on the face of the figures, remains with the motocyclette man. Furthermore, 97, although in kilometres, looks bigger than 60¼ in miles.

Exact comparisons cannot be easily set down, as automobile records in France are made on straightaway courses. Fournier, Augieres, Gabriel, and others have driven at the rate of 80 miles an hour on such fine stretches as the Dourdan road. When the French drivers have done their best on American circular tracks, and the American drivers have done their best on French straightaway courses, then the correct comparisons can be tabulated.

With the growth of automobile manufacture and the development of automobile racing in France, it has long since become necessary to establish categories and classifications.

As a matter of record, the categories have been the direct result of the successive productions. At first all the competing machines in a race were "just automobiles," but little by little the variety thereof grew, until there were "light automobiles," "voiturettes," and so on.

At present, one may lay out the programme for a big race meet about as follows: Automobiles (heavy), the weight of which exceeds 650 kilograms. In the special case of the International Cup race the limit is fixed at 1,000 kilograms.

Next down the grade, in point of weight, are light automobiles, weighing 400 to 650 kilograms. It is this so-called "light" class that, in the last three years, has become a danger to the "heavies." Examples, the Renault in the Paris-Vienna, and the same make in the Paris-Madrid (as far as Bordeaux).

Then come the voiturettes, horse-power represented as eight and ten, and precisely known only to the manufacturer, weighing 250 to 400 kilograms. When the voiturette crowds over the 400 mark it immediately becomes a light automobile without missing a stroke.

Formerly there was a motocycle category, embracing three and four wheelers, but the "quads" were soon wafted to their bourn on man's sentiment that he "might just as well have a little automobile," and the tricycles, after holding on awhile, finally ran far away unwept. Thus the quadricycles and the tricycles, with rare exceptions, have gone into the sacred oblivion which envelops "high bicycles" and a few other dear memories.



WHERE THE AUTOMOBILE EXPOSITION IS HELD

Enter the motocyclette; that is to say, the motor bicycle. It had much to contend with at first, the principal "knocker" being the gratuitous assertion that it would slip and break the rider's leg in several places. Well, the motocyclette has proved to be not such a very murderous contraption, and, as for speed, it is now chasing the autos closely enough to mix the smells.

The motocyclette has finally succeeded in commanding flattering attention in the shape of two categories—above and under fifty kilograms in weight, the delicate question of horse-power again being ignored. Recently the problem of fuel consumption for motocyclettes has been receiving much attention, special interest centering in how much a motocyclette can do with a quarter of a litre of pétrol.

There is still another system of establishing categories—that of the "frame value," sans body. For instance, in tourist divisions, at race meets, there are categories established for automobiles of which the machines, without regard to body work, are listed, consecutively, under 4,000 fr., 4,000 fr. to 8,000 fr., 8,000 fr. to 12,000 fr., 12,000 fr. to 18,000 fr., 18,000 fr. to 25,000 fr., and over 25,000 fr.

Some manufacturers enter the 4,000-fr. category to

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THEIR HIGHNESSES THE TUNGKU BESAR, REGENT OF PAHANG, AND THE TUNGKUPUAN BESAR, OF PAHANG, AS GUESTS IN LONDON OF EDITOR NOEL KENEALY, OF MOTORING ILLUSTRATED

show great quality for a modest price, and others enter the "over 25,000 fr." category, just to show that their product is ultra chic.

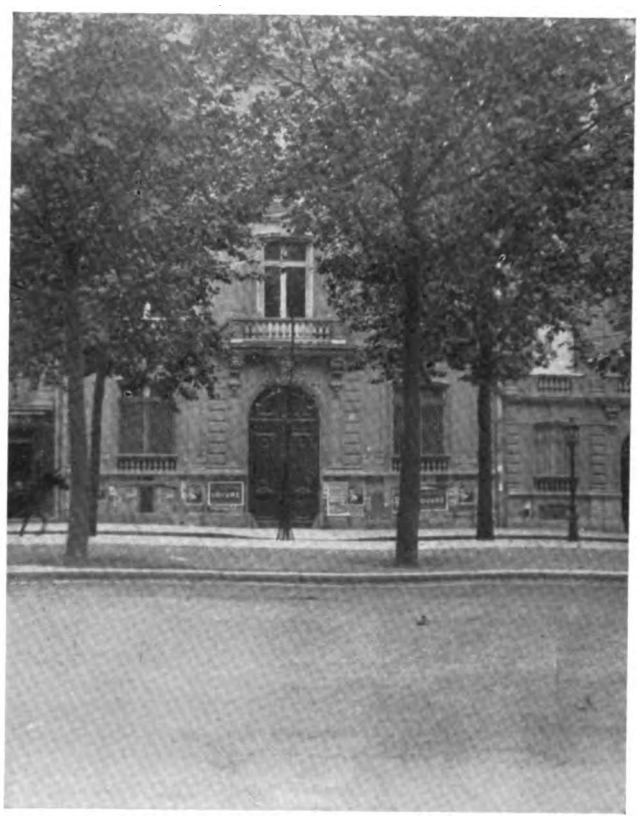
The annual automobile exposition to be held in the Grand Palais, December 10 to 25, will, of course, be the "latest and biggest" of automobile shows on record.

All the space and more has been asked for, the principal manufacturers of France, Great Britain, and the Continent are all figuring on displaying something that will be called the "clou" of the show, or at least something that will attract more than a glancing attention, and the public may be counted on for a manifestation of interest greater than ever.

The famous, or, rather, notorious "maison des Humberts," at 65 Avenue de la Grande Armee, has been purchased by the Touring Club de France. Accordingly, the officials and clerks of the Touring Club will carry on their routine in the same rooms where the wonderful Thérese Humbert (now scheduled for five years' hard labor) entertained ministers of state and lights of the French aristocracy, in the days of her unlimited prosperity on the millions she never possessed. The safe which contained (not) the hundred millions was taken from the house some time ago, and it went under the hammer at the auction sale, along with other chattels, so that M. Ballif, president of the Touring Club, will be obliged to buy another for holding the funds; but the walls alone of this fortune-haunted house should be sufficient to maintain a curious memory of the Humbert-Crawford-Daurignac legend.

The general meeting of the Touring Club, at which the vote for the purchase was taken, was rather stormy. It was similar to L. A. W. meetings of the "amateur" question days, and all kinds of oratory went to waste. The valiant defenders of the club treasury and exponents of the conservative theory soared in the air of outraged virtue like the chairman of a minority report from the Kansas delegation, but to no avail.

The vote was 2,000 to 180, and the Touring Club became the proprietor of the Humbert House at a purchase price of about 500,000 francs. Considering that the club has a total in its treasury considerably under this sum, the policy of the transaction is, at least, open to discussion.



THE EX-MAISON DES HUMBERTS

What a howl there was when the general committee of the Automobile Club de France proposed to name the Panhard "de droit"—that is, arbitrarily, by right, without question—as one of the machines in the French team of three to compete in the Coupe Internationale (James Gordon Bennett) race next year in Germany.

The committee seemed to be of the opinion that the "good old Panhard," because of its long string of victories in the past, should be put on the list without the formality of a preliminary and eliminatory contest, while the two other machines would be selected by means of this self-same "eliminatoire."

As eight or ten different firms already have aspirations of being cup contestants next year, the uproar caused by the committee's project can be easily understood. Now that the idea has been so heavily "sat upon," it is hard to believe that the committee regarded its own proposition as being more than tentative, even though the bluff carried a very serious air at the time.

Upon learning of this arbitrary proceeding, the sports committee of the club had an official fit, the newspapers elaborated on the affair, the various syndicates of the allied automobile and cycle industries thundered their disapproval, and there was general ignition and combustion on the subject.

At the moment when the complications were the most tangled, and the committee was wondering how it would ever get gracefully out of the mess, the Panhard people came along and said:

"Gentlemen, we are highly flattered by the proposition to select one of our machines without our being compelled to run for it, but under the circumstances we prefer to decline the honor and to take our place in the ranks with the others for a selection by the process of elimination."

Accordingly, the French team will be decided upon by elimination, and there will be no favors.

If La Fontaine could rise from his tomb in his native town, Chateau Thierry, and be a spectator at the automobile hill-climbing contests he would probably be inspired to write another fable and call it "The Auto and the Hill."

Chateau Thierry is a peaceful and pretty town on the



DOMINIQUE LAMBERJACK, THE MOTOR CYCLETTE WINNER

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banks of the Marne, and the Marne seems to partake of the general easy-going disposition of the inhabitants and their affairs, for it runs through Chateau Thierry in much the same manner as the man who, objecting to the description of the Schuylkill as "running" through Philadelphia, said: "Nothing runs through Philadelphia."

Chateau Thierry, besides being associated with heroic events in history (Napoleon, in 1814, with 20,000 men, defeated here 50,000 Russians and Germans under Blucher), has acquired modern fame by being the home of M. Magnaud, the magistrate known as the "bon juge." M. Magnaud's name recently became a by-word for judicial clemency, as, on a certain occasion, he pardoned and discharged a poor woman who had been brought before him for stealing a loaf of bread. The woman's defense was that she stole the bread to avoid starving.

Well, on the day of the races, it rained. The automobiles, nevertheless, went the kilometre up hill at 50 and 60 miles an hour. Gabriel, with a heavy Mors, climbed in 56 2-5 seconds, this time being equalled by Beconnais, with a Darracq (frame value, 12,000 fr. to 18,000 fr.).

Rigolly, with his 100 horse-power Gobron-Brillié, did the trick in 45 1-5 seconds.

Lamberjack, with his Griffon motocyclette, was, as usual, a "class by himself," all other "bikes" being practically out of it. "Lamber" is not unknown in America.

In voiturettes the Darracqs were first and second, and in light automobiles the Georges Richard-Brazier machines well to the front, one of them winning in that category in the time of 50 1-5 seconds.

The Peugeots won in the one-quarter litre contest and also in the price category of 4,000 fr. to 8,000 fr., with a 10 horse-power machine.

Reliability trials in England and endurance runs in the United States are to have an echo in a touring contest ("Concours de Tourisme"), to be run from Paris to Rome in March.

A tourist automobile is defined as follows: A comfortable vehicle, with seats upholstered and provided with practicable backs, brakes and reverse action, mudguards to all the wheels, body so constructed as to admit of carrying valises and small baggage. The seats must measure 18 inches wide and 18 inches deep.

The categories will be made according to the "cylindrée"; that is to say, the quantity of gas mixture to each explosion, these quantities being 0 to 2 litres, 2 to 4½ litres, 4½ to 7 litres, and over 7 litres. The "cylindrée" is calculated according to the diameter of the cylinder and the length of the piston stroke. The vehicles of the first category may have only two places, and the others must have four places.

The speed attained on each day of the run will not be taken into consideration, no times being recorded for start and finish.

The winning automobile in each category will be the one that is accorded the minimum of points.

The load is taken into consideration beginning from the frame and machinery (empty reservoirs and accumulating batteries included in weight of frame)—that is to say, the weight counting in the classification will be that of the body, the accessories, the passengers, and the baggage. The count, in this respect, will be one for each kilogram.

In each category, the lowest-priced frame will be taken as a base, and registered as zero. Frames of higher prices will be charged with one point for each 25 francs above the basic price.

In each category the lightest consumption of fuel will be taken as the base, the automobile having the lightest consumption being taken as zero. The others will be charged ten points for each 100 grammes of excedent.

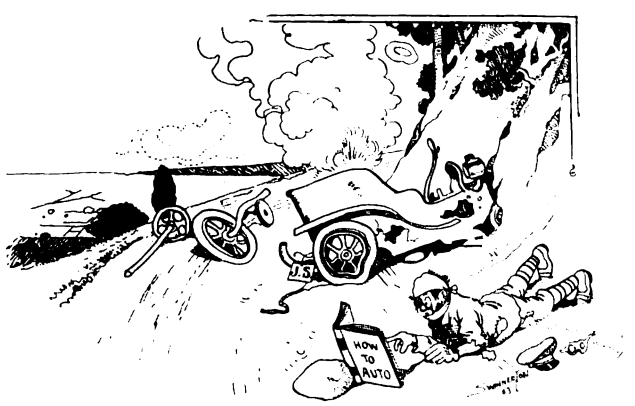
On the level, on hills, and in 500 metre trials (to be held if found practicable, during the excursion), with standing start and stopping at given line, one point per second in accomplishing the distance.



THE STARTING POINT AT CHATEAU THIERRY

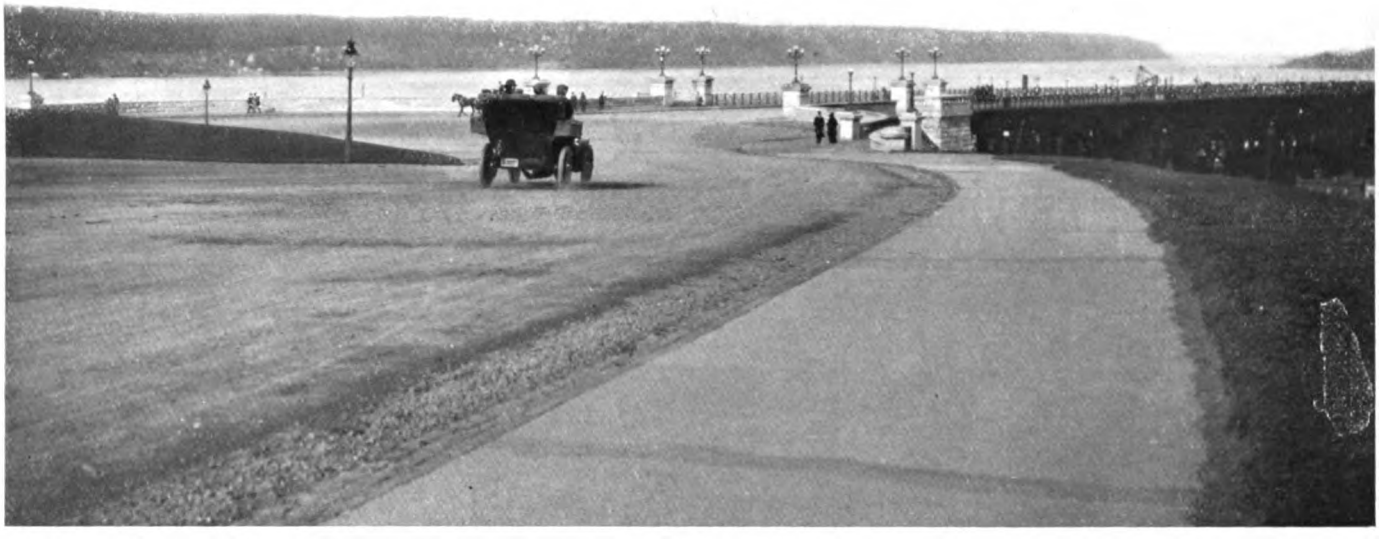
For special consumption test, first category allowed 1 litre; second, 2 litres; third, 3 litres; fourth, 4 litres; one point for each 100 metres accomplished.

Other points are to be charged for brake tests, short turning of curves, comfort in the vehicles, late arrivals at stations, and lack of original weight found existing at any time the judges deem prudent to make an examination.



"B'gosh, I pulled the wrong lever!"

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THE AQUEDUCT ON NEW YORK'S FAMOUS RIVERSIDE DRIVE

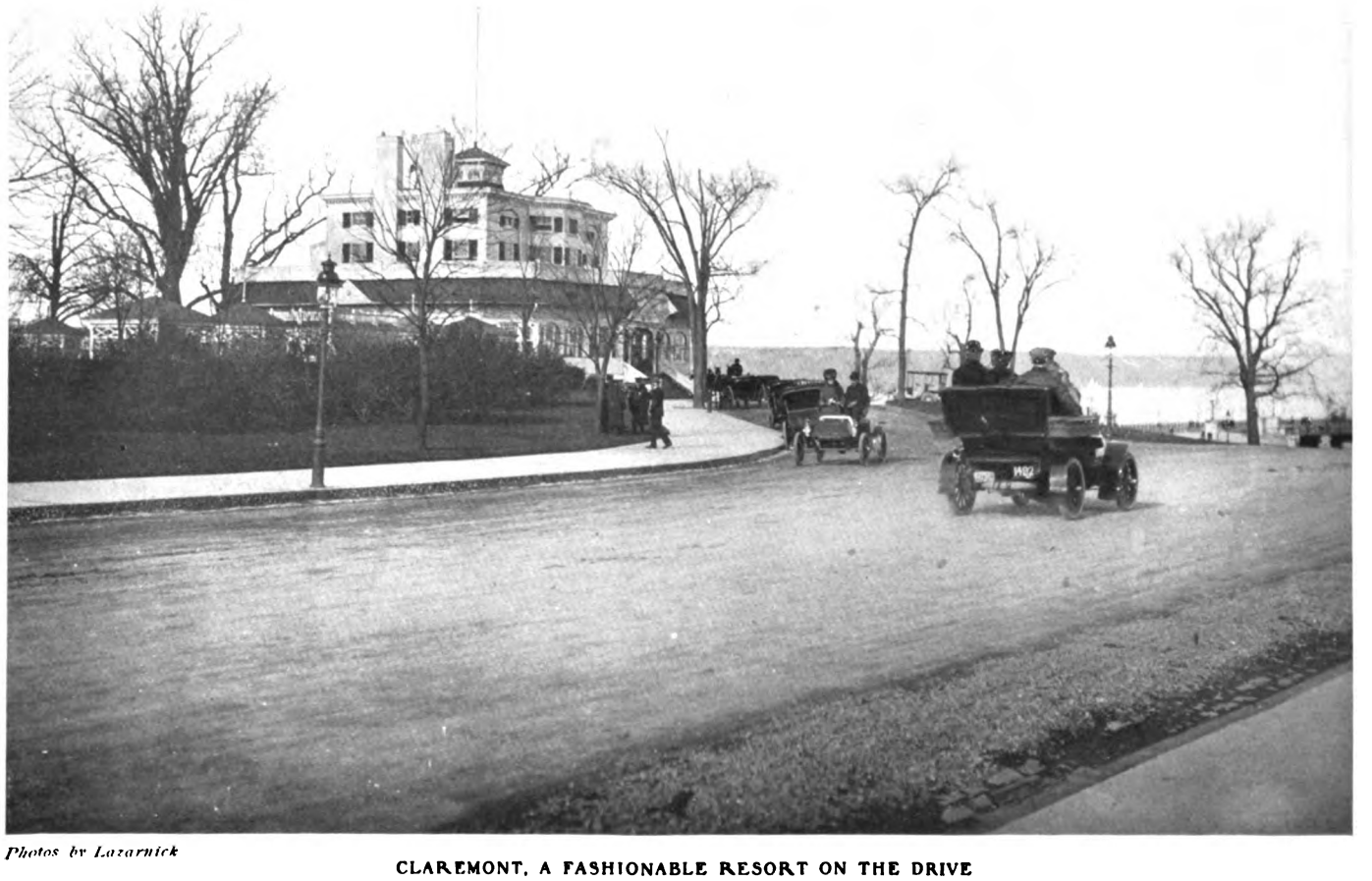
NEW YORK'S RIVERSIDE DRIVE

No city in the entire country possesses such a magnificent stretch of boulevard as skirts the beautiful Hudson river in New York City. The famous Riverside Drive was not constructed in a day, and the improving of it is yet far from complete.

Starting at Seventy-second street, the Drive will continue, when finished, for a distance of four and one-half miles and offer a panorama to the automobilist, horseman, and pedestrian such as they cannot find elsewhere. Hills are interspersed along the drive, such grand monuments as the Soldiers and Sailors' Memorial and Grant's Tomb adorn it, and across the river the cliffs of the Palisades add to the beauty of the scene.

On any pleasant morning, especially Sundays, the Drive is crowded with vehicles of all kinds, while processions of pedestrians line both sides of the thoroughfare. The Hudson river is covered with pleasure craft—there being several yacht and boat clubs located on its banks—and the entire scene shows the energetic American in the keenness of his enjoyment.

It is only recently that the people of the metropolis have appreciated their grand river road, which has been more familiar to visitors than to those living within easy access.



Photos by Lazarnick

CLAREMONT, A FASHIONABLE RESORT ON THE DRIVE

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Paradoxical though the statement may appear, the Horse Show at Madison Square Garden proved a veritable triumph for the automobile, for nine-tenths of the fashionable people who attended the exhibition arrived there day after day in motors of every conceivable description, and were able to enjoy themselves without the compunction which they would have suffered if they had been compelled to feel that their carriage horses were waiting for them outside exposed to the abominable weather which prevailed throughout the greater portion of the week. It is sentiments of this kind with regard to their horses that used to lead people to send away their carriages, bidding them return to fetch them at a certain hour, which, of course, had the result of compelling them to remain until the appointed time, preventing them from getting away earlier if they felt inclined to do so.

In fact, nearly everybody drove to and from the show in motors, and were loud in their praises of the superiority of vehicles of this kind over the horse-drawn broughams and carriages.

To those who have still been lingering at their country places in the vicinity of New York during the month of November, the motor likewise proved an immense boon during the Horse Show week, for it enabled them to dispense with the discomfort and trouble of taking up their residence for the time being in one of the city hotels, or of opening their town houses for the few days. They found it possible to run up to the city in their motors in the morning, and after lunching at one or another of the fashionable restaurants, and spending the afternoon at the Garden, watching the horses and meeting their friends and acquaintances, to return out to their country places in their automobiles in time for dinner. Mrs. Stuyvesant Fish, Mrs. John Jacob Astor, Mrs. Clarence Mackay, Mr. and Mrs. Whitelaw Reid and their daughter, Mr. and Mrs. Harry Payne Whitney, Mr. and Mrs. Ogden Mills and their two daughters, William C. Whitney, with his step-daughter, Miss Adelaide Randolph, and his daughter, Miss Dorothy Whitney, were among the large number of those who remained at their country places throughout the Horse Show week, making daily runs into the city in their motors, for the purpose of passing a few hours at the Garden.

Although Count Cassini, the Russian Ambassador, so little expected to return to this country that all his belongings at Washington had been packed up by his orders preparatory to their dispatch to Europe, yet he is back here with us again and has resumed his position in the National Capital as Dean of the Diplomatic Corps. He has been, of course, accompanied to America by his adopted daughter, Mlle. Marguerite de Cassini, who is just as enthusiastic as ever about motoring, which is indeed her favorite pastime, and at which she is an adept. She has brought back with her a number of the latest of Parisian devices for endowing the garb of a chauffeuse with some of that elegance and daintiness which was so sadly lacking when women first took to motoring and considered it necessary to adopt the most hideous costumes in order to protect themselves from the mud, the dust, and the wind. Nowadays it has become possible for a woman to drive an automobile without abdicating one bit of her fascination, and Mlle. de Cassini has undertaken to be one of the most charming exponents of this truth during the coming Winter. The Ambassador is likewise often seen in an automobile, which he drives himself, guiding it with as much skill as he handles the somewhat tangled reins of Muscovite diplomacy in the United States.



MLLE. MARGUERITE DE CASSINI

Occasionally, every now and again, the motor brings to light an unsuspected romance. Thus the other day a slight mishap to an automobile near Coburg, in Germany, assumed an importance altogether out of proportion to its trivial character through the discovery that its occupants were the divorced Grandduchess of Hesse and the Grandduke Cyril of Russia. It subsequently developed that the Grandduke has been paying the most assiduous court to his beautiful cousin, and that for a number of weeks previously, when he was believed at St. Petersburg to be sojourning in France, he had been in reality living incognito at Coburg, where he was in daily association with the young Grandduchess, the companion of all her walks, rides, and drives in his splendid automobile, which is one of the most up-to-date and perfectly equipped of Panhards.

The Grandduke, who is third in the line of succession to the throne of Russia, and who visited the United States some three years ago, is now known to be completely infatuated by the Grandduchess, and determined to marry her. The match, however, is strongly opposed by the Czar, who has sided with the Grandduke of Hesse in his matrimonial troubles, and is bitterly prejudiced against the Grandduchess. Moreover, marriages between first cousins are strictly prohibited by the Muscovite Church, and Emperor Nicholas has intimated that he has no intention of giving either an ecclesiastical dispensation in his capacity as head of the church, nor his sanction as chief of the house of Romanoff, which is necessary in order to render valid marriages contracted by any of its members. Should the Grandduke persist in marrying the Grandduchess, who is by birth a Princess of Great Britain, he would undoubtedly be exiled by Emperor Nicholas, and would be unable to return to Russia unless through the default of male issue of the Czar and the death of the latter's younger brother, Michael, his (that is Cyril's) father, the Grandduke Vladimir, were to come to the throne. In that event the divorced Grandduchess of Hesse, who parted from her first husband because she could not put up any longer with his practical jokes and his effeminate

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ways, might yet become Empress of Russia, and give the Kaiser cause to regret that he so summarily deprived her of the honorary colonelcy which she held in the German army—the only instance on record of a royal princess being cashiered.

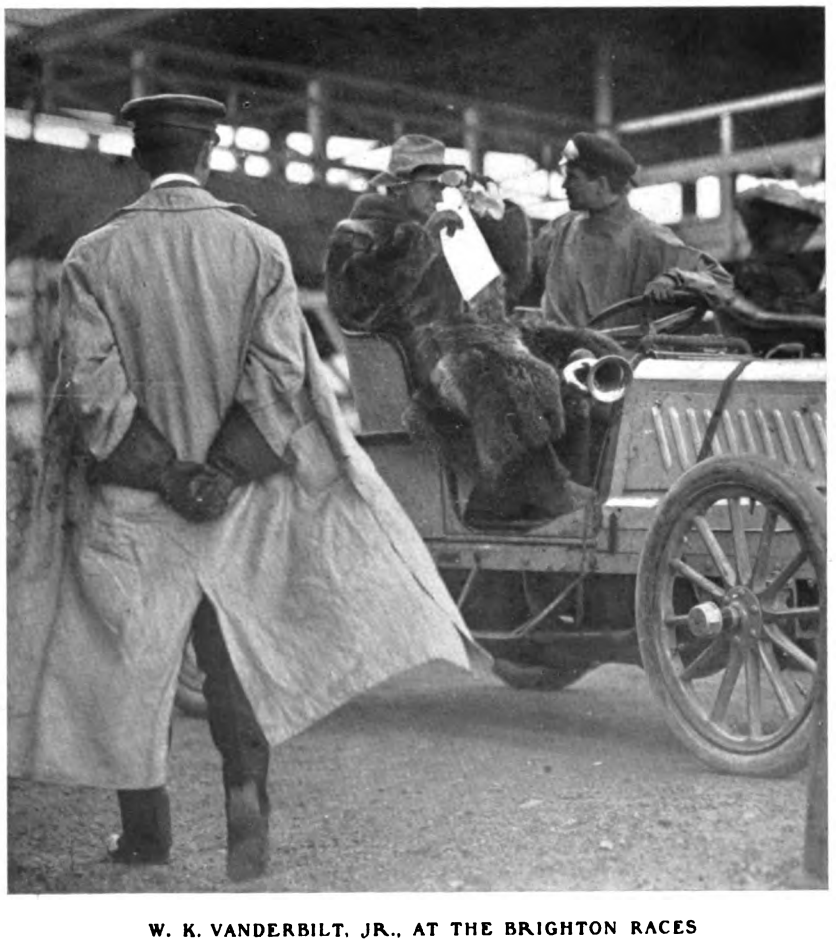
Lord Ampthill, the Governor of Madras, is making an official tour throughout his presidency in an automobile, visiting remote districts far beyond the reach of any railroad, and which have never before been trodden by a British Governor. His motor seems to have created a tremendous sensation among the natives, who have given it the name of "Aggadi" or "chariot of flame," and regard it in the light of something altogether supernatural. In other portions of India, however, automobiles are gradually superseding the old-time means of locomotion, the stately elephant, the swinging camel, the high-bred horse, the sleepy, patient oxen, and the Palanquin, in which one dreams and perspires through the dust and glare of the Indian day. Lady Curzon, the American-born wife of the Viceroy, and Lord Northcote, when Governor of Bombay, and Lady Northcote, have made frequent use of their "flame chariot," while among the native princes who have invested in motors are the Rajahs of Morvi and of Kapurthala and the Guicar of Baroda.



SENATOR DEPEW

King Edward, while he rarely allows a day to pass without making use of his motor, has so far abstained from any long run, his furthest tour having been from Sandringham to Newmarket, while he occasionally drives from London out to Windsor, lunching at the Castle and returning in the afternoon. Unlike King Victor Emmanuel, who has been visiting him in England, he never attempts to handle the lever, leaving the control thereof wholly to his chauffeur, and, perhaps, it is thanks to this that he has enjoyed such an extraordinary immunity from accident of any kind in his daily trips.

While Senator Chauncey Depew is severing his connection with many of the great railroads with which his name has been identified throughout the greater portion of his public life, and is becoming less and less of what is known as a "railroad man," he grows more and more devoted to motoring, and both at Washington and in New York is seen flying about in his automobile, at a rate of speed which suggests defiance of the local ordinances, and recalls to mind those trials of rapid transit which he was so fond of organizing between New York and Albany when president of the New York Central. He seems to be growing younger every day, and it would appear as if motoring had aroused in him latent instincts of a sporting character which no one suspected that he possessed. He has been talking of getting up at Washington a speed contest among those of his fellow Senators who, like himself, own automobiles, and it is hoped that the project will meet with the success which it deserves, for it would certainly be a most impressive spectacle to see the most influential and respected members of that august body, the United States Senate, garbed in goggles and visored caps, racing one another in their motors in a manner to suggest those chariot races in which the Senators of ancient Rome were wont to indulge in the Coliseum.



W. K. VANDERBILT, JR., AT THE BRIGHTON RACES

While staying at Wolfsgarten, the country place of the Grandduke of Hesse, as the guests of the latter, Emperor Nicholas and the Empress spent much of their time in motoring about the surrounding country with their host and with Prince and Princess Henry of Prussia. Unattended, save by the chauffeurs, apparently free from care, and enjoying themselves to their heart's content, the Czar and Prince Henry, with the Grandduke of Hesse, usually headed the procession in a small, low-lying, silver-painted, 12 horse-power tonneau, Prince Henry being at the lever, with the Emperor and the Grandduke occupying the back seat. The Empress and her sister, Princess Henry, followed behind in a 24 horse-power, red-leather upholstered open limousine, being protected from the wind and separated from the chauffeur by a sort of plate glass screen, the two ladies being usually dressed alike in plain serge frocks, with short walking skirts and Norfolk jackets to match and blue hats with pink feathers. They were by no means exempt from the ordinary run of mishaps that lend excitement and the spice of adventure to the motoring of less exalted mortals, and one day on their way to picnic at Salzburg both motors skidded into the gutters, one on each side of the street, in the dirty little village of Praunheim, near Frankfort. The machines were quickly extricated from their predicament, with the assistance of the peasantry, who were ignorant of the identity of the occupants, the latter treating the double and simultaneous accident as an immense joke.

The motor has lately been playing a rôle in municipal politics abroad, and the Burgomaster of Brussels, the Baron de Mot, has been defeated in his attempt to secure re-election mainly on account of his aversion to motoring. MARSTON.

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MOTOR FASHIONS IN FAD

By Diana



Now that the motor girl has become such a recognized factor in fashions it is a pity that one's glimpses of her loveliness are so fleeting. Now we see her. And now she vanishes. She is always whizzing by us in a big, puffing racer. Surely this is all very wrong. Why shouldn't the Automobile Show become a fashion rival of the Horse Show? Why shouldn't the motor girl have a chance to display her new motor costumes and show to an admiring throng how cleverly fashion has dealt with the new situation—fitting the society girl's costume to her most absorbing fad?

It would be an odd sort of show, to be sure, but there would be novelty in it, if, in addition to the exhibit of machines, there might be included exhibits of motor fashions.

It is a little too much to expect of the self-sacrificing motor girl that she herself should attend the annual Automobile Show arrayed in the newest motor fashions, for no matter how interested she may be in ear protectors, face masks, goggles, and long fur and pony skin coats, she, of course, has opinions of her own regarding there being a time and place for everything.

However, she might be delighted to see all the novelties in motor fashions and it might please her immensely if these garments and accessories were worn by living models.

Of one thing there is no doubt, and that is, if such an exhibit should be a part of the Automobile Show, it would surely amaze beyond expression the man and woman who do not go in for automobiling, to see how many novelties are being made exclusively for the motor girl.

Once the motor girl's coat bore a striking resemblance to that worn by a hard-working machinist. There was no thought of beauty or style in its designing. But to-day the motor girl has many and varied coats, each one decidedly interesting from the fashion viewpoint. She has smart, chic-looking jackets made of the softest Danish kid and she has luxurious fur coats that appreciably diminish her bank account if she is unfortunate enough to have to pay for them herself. This year her fur coat is invariably made of either beautifully matched squirrel skins, Russian pony skins, or moleskin, and oftentimes she has three, one garment made of each.

A long, loose-fitting motor coat which suggests warmth and comfort in riding, no matter how biting the wind that blows, is made of squirrel skins in their natural color and finished with a deep collar, revers, and cuffs of fluffy white fox. The pony skin coats, which have almost as glossy an effect as satin, are very much in demand, which demand will increase as winter advances.

The latest novelty is a three-quarter length garment, made with sleeves which are so finished below the wrists that they form a muff. Another novelty is the garment which has the sleeve ending in a mitten. The coat is made with a full sleeve, which, instead of ending in a cuff at the wrist, is shaped exactly like a mitten. This very odd mitten fits the wrist snugly, being fastened with a narrow leather strap and buckle. The loose-fitting kid motor coats are also much the fashion. The smartest are trimmed with strapped bands piped in a contrasting color. The black kid coats with the pipings in bright red are considered extremely modish.



The motor girl is taking just as much interest these days in her hats and hoods made solely for motoring as she is in her most picturesque millinery creations of ostrich plumes, velvets, and laces.

At one time a cap much like the one worn by her chauffeur would have suited her. But now all this is changed. She studies the effect of her motor hat from the side and the back. She gives serious thought to its shape and practicability and she is most particular and determined that its color shall be becoming.

Sometimes the motor girl has her monogram embroidered at the end of one of the streamers.

Fur caps to match the fur coat are often worn with adjustable ear protectors, and kid caps come to match the kid coats. For bad weather riding, there is nothing newer or more serviceable than the toque made of waterproof silk rubber. In shape it is quite as fashionable as any smart, becoming toque of velvet.

The very latest, most to be desired veil has an accordion-plaited curtain in front and two long plain chiffon scarf ends. This veil is finished in the front with a narrow ribbon which ties around the low crown of the hat. From this the accordion-plaited curtain falls, the long ends cross in the back and are tied in front under the chin, drawing the accordion plaiting close to the face. These veils are finding much favor.

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AN AUTOMOBILIST'S WOOING

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By Annesley Kenealy

It all happened in a moment. And to this day, the Honorable Jack Raymead, who was driving along a pleasant English lane, cannot explain how the accident arose. A moment of hesitation, a slight swerving—a crash!

And here was his brand new Parisian automobile overturned in the ditch, barely a square foot left sound and unsplintered.

His beautiful American companion—the woman he loved—lay faint and still amid the confusion of the smash-up, and Heaven alone knew how serious her injuries might be.

To use his own expression, it was the "tightest corner" the Honorable Jack had ever been in.

Looking about in his bewilderment, he seemed to be the only living person within a five-mile radius. Looking down at the unconscious Trinda Trenton, he felt like beauty's murderer.

Miss Trinda, by common consent of the county, had been voted the smartest and prettiest girl who had ever visited Foxshire.

Though "a southerly wind and a cloudy sky" proclaimed a hunting morning, Jack and she had refused a run with the foxhounds. They had come out together in the Spring sunshine to try the paces of a racing automobile just home from Paris. The Hon. Jack had made up his mind to try his matrimonial fortune at the same time.

He intended to slow-up at some solitary and sentimental spot and pour out the measure of his devotion. Perhaps the prospect made him nervous. Anyway, he had driven a trifle recklessly, lost his head at a critical bend in the road—and now he was contemplating his morning's work with rueful and unavailing remorse.

Foxshire at first sight and with conspicuous lack of originality had christened the American beauty the Belle of New York.

And here lay the belle—"his belle," as the Hon. Jack fondly hoped—white and stunned and no possible help within hail.

Pulling himself together, he extricated some cushions and rugs from the heap of débris, lifted her tenderly on to the impromptu couch and drew a silver hunting flask from his pocket.

He must try to force a little brandy between the white lips. Thank God! she was not badly hurt. As he gently supported her head on his arm she half opened her eyes and looked into his.

"Jack," she said, in soft and halting tones, "why—don't you speak—you must know that I love you."

The confession came out in little sobbing gasps. And her companion stooped and kissed her white hands reverently.

Now the Hon. Jack was a gentleman to his finger tips. And "I'm hanged if a chap can be such a beastly cad as to listen to what an unconscious girl says," was his first thought.

But what else could a man do? It was impossible to leave her—and here they were amid a dreamy stretch of farm fields and turnips.

Jack looked helplessly round and thought vaguely of wireless telegraphy and the general futility of scientific research.

"It's all a mistake, dear," she went on, "to think about money. I'm rich enough for both, Jack—I don't mind your being poor, dear"——

Now this was rather a puzzler to Jack, who was certainly not "poor."

"But, of course, I haven't much compared with these American millionaire chaps," he concluded, on second thought.

Trinda was the only child of General Trenton, the distinguished United States ambassador to France, and this was her first visit to England.

Early the previous Fall she had deserted the social gaieties of the Paris Embassy for a good Winter's hunting in Foxshire, and had come to stop with the Countess of Leicester, whose husband was master of the smartest pack of hounds in the country.

Jack Raymead had been her most devoted admirer since that first day when she rode into the field "sitting her horse as lightly and daintily as a butterfly," as one sentimental hunting man—a fierce rival of Raymead—put it.

At each succeeding meet of the season the Hon. Jack had ridden close beside her.

He knew every inch of the country, the short cuts, the ditches and fences "safe for a lady."

And on many notable occasions Trinda Trenton had been the only woman "in at the death," the Hon. Jack invariably at her side.

His brother bachelors, jealous of Jack's privileges, agreed that "she must find his eternal escort a beastly bore."

But she showed no signs of boredom. And her collection of silver-mounted fox brushes was the envy of every "mighty huntress" in the district.

But none of the sharp feminine eyes that watched had been able to detect her in giving Raymead the least matrimonial encouragement. Nevertheless, the sporting spirit of the neighborhood was aroused, and betting ran high as to whether "our Jack," the pride and best parti of the county, would "make the running" with the American beauty.

All the mothers of marriageable daughters—to say nothing of the daughters—united in a sporting, though most un-Christian, prayer that he would "come a cropper" in the contest. Why should an American girl come, see, conquer and carry off the best matrimonial prize in their field? It would be easier almost to relinquish him to a friend and neighbor!

The Hon. Jack himself was most despondent. Trinda was always friendly—much too friendly—he reflected despairingly.

But there had been no sign of sentiment or deeper feeling in her attitude toward him.

She was gay and charming—but she was that to everybody.

"Perhaps American girls have a different way of love-making," was his comforting conclusion.

And now the sweetest words he had ever heard from a woman's lips were singing in his heart.

"Jack, why don't you speak? You must know that I love you"——

"Why didn't the heavens fall when delightful surprises of this kind came to a man"——

"You know that I love you."

And Jack looked with tender manliness at the graceful form lying so still on his improvised bed of cushions. Her shining golden hair fell loose from its pins as he gently removed her dainty hunting hat. The blue-veined lids hung heavily over the lovely eyes. She looked like a beautiful bit of white alabaster.

What a delight, he thought, when she was recovered, to ask his goddess to become his wife. And he would never breathe a hint of her sweet, unconscious confession.

Of all the beautiful countesses of his race and name, there was none to compare with her in the family portrait gallery at home. He was the only son of Lord Lassington, and in course of time his lovely American bride would do the honors and hospitalities of the old castle.

At the present moment, the Hon. Jack's castles were very much in the air. But he was suddenly startled out of his roseate visions by the prose of a pack of hounds in full cry.

The picturesque possé came quickly toward them, most of the field in bright "pink" coats and full hunting kit. As good luck would have it, the scent had led the pack to the scene of the accident and two surgeons were "out" with the field.

"Slight shock. Nothing serious. Needs a few days in bed," was the doctor's diagnosis of the case.

"You must put her up at Foxshire Court," said Dr. Duncan, somewhat mischievously, to the lovesick Raymead.

The Court was Jack's own little bachelor hunting box—known among his friends as "the house that Jack built," and was within easy driving distance. Jack borrowed a horse, and set off in all haste to prepare the Court housekeeper for the coming of the invalid. And he intended to see for himself that his fastest team was hitched to the

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wagonette and a soft mattress placed on the carriage floor for his lady love's ease and comfort.

"I shall move over to the home farm and wire for Lady Leicester and some nurses," he announced with as much calmness as he could command.

The thought of Trinda as a guest in his house was a bit of luck that Jack could not contemplate with coolness.

Miss Trenton was soon safely and cozily disposed in the "best bedroom" the little hunting box contained.

"Bless her sweet face!" said Mrs. Betts, the housekeeper, who acted as temporary nurse. "She keeps a-saying I'm not to tell Jack about the accident."

Of course the housekeeper knew—as housekeepers always do—far more about her master's love affairs than he knew himself.

And with the privilege of an old servant she put her seal of approval on the Hon. Jack's choice.

Lady Leicester, accompanied by two trained nurses, drove over in post-haste to put her protecting chaperonage over the affair. Jack had meanwhile telegraphed the news to Trinda's father and learned that he was coming over by the night mail from Paris.

"Any son-in-law might well be proud of so soldierly and aristocratic a man as General Trenton," was Jack's unspoken thought as he met him at the station.

But who was the stalwart, handsome young man traveling along with the General? What right had any stranger—and a confoundedly good-looking one, too—to intrude himself into the midst of family affairs?

Oh! he was the secretary of the United States Embassy, was he? Of course, under those circumstances he had an official right to be with his chief. But that didn't furnish a reason why he should be so visibly anxious and agitated about Miss Trinda's condition. He seemed to think the entire British nation was not competent to look after one sick girl.

Talked about telegraphing for the best London surgeons or cabling for a New York specialist.

Now Jealous Jack resented any other man's anxiety about Trinda. He hadn't closed his eyes all the previous night in terror lest she might be suffering.

But that was altogether different. Cyril J. Custance—Jack glanced at the card the stranger gave him—had better confine his energies to the United States Embassy—that was his end of the business.

But Raymead soon recovered his good temper. He could afford to be generous to a poor devil who was outside the gates of Paradise.

Cyril J. Custance had never heard Trinda say:

"Jack, why don't you speak? You know that I love you."

"Don't wait lunch for me," said the General, when the party reached the Court, "I must see my little daughter right away."

Lunch was just over, the cigarette and coffee stage reached, and Raymead was on the point of deciding that his new American guest was the "finest, handsomest chap he had ever met," when the General came back, smiling and genial.

"Jack," he began, "Trinda says I'm to take you to her at once."

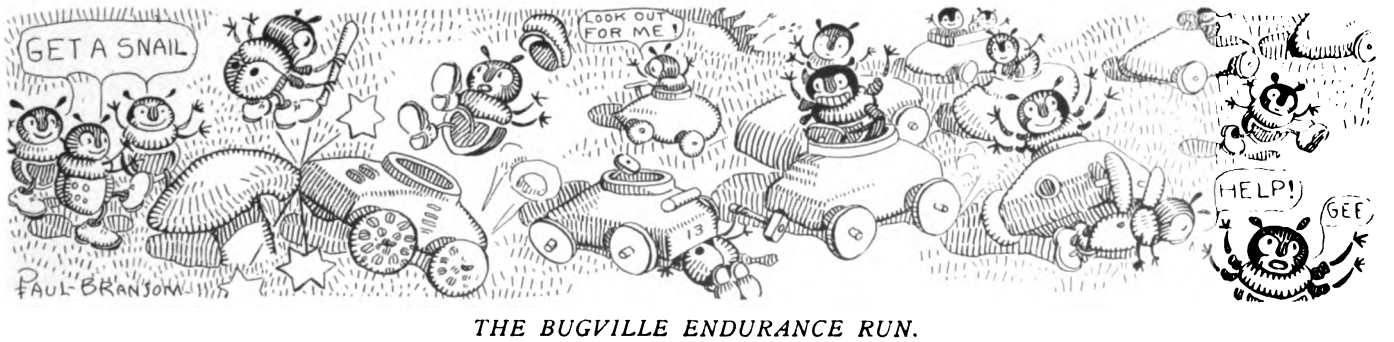
Both men started up eagerly.

"I guess she means me," said Jack Custance, quietly.

At a meeting of the American National Milliners' Association, recently held in Chicago, one of the delegates expressed herself in favor of more esthetic and fitting designs in ladies' automobile apparel. An extended discussion ensued, the results of which may be productive of much improvement.



NOVEMBER	
Sat. 28	Aero Club Meet at Crystal Palace, London.
Mon. 30 to Dec. 5 .	Motor Reliability Trials in Paris.
DECEMBER	
Tues. 1	Automobile Club of America "Tuesday-Night Talk"—Lecture: "The Electric Battery," Mr. Lamar Lyndon.
Wed. 2	Founders' Dinner at Automobile Club of Great Britain and Ireland.
Thur. 3	Automobile Club of Great Britain and Ireland, Paper "Les Combustibles Liquides employes dans les Moteurs de Voitures Automobiles, leur melange avec l'air et leur inflammation," M. Forestier.
Tues. 8	Automobile Club of Great Britain and Ireland—Lecture: "Experiences," Mr. Cozens-Hardy.
Thur. 10 to Dec. 25 .	Automobile Salon, The Grand Palais, Paris.
Thur. 31	Last Day for Entering for the 1904 Gordon-Bennett Cup Eliminating Trials.
JANUARY	
Sat. 16 to Jan. 23 . .	New York Automobile Show.
Sat. 23 to Feb. 4 . .	Automobile Show at Brussels, Belgium.
Mon. 25 to Feb. 6 . .	Florida East Coast Automobile Association Race Meet at Ormond-Daytona Beach.
Tues. 26 to Jan. 30 .	Philadelphia Automobile Show.
FEBRUARY	
Sat. 6 to Feb. 13 . .	Chicago Automobile Show.
Fri. 12 to Feb. 24 . .	Automobile Show at Crystal Palace, London, England.
Mon. 15 to Feb. 20 .	Detroit (Mich.) Automobile Show.
Mon. 29 to Mar. 5 .	Cleveland (Ohio) Automobile Show.
MARCH	
Mon. 7 to Mar. 13 .	Buffalo Automobile Show.
Mon. 14 to Mar. 21 .	Boston (Mass.) Automobile Dealers' Show.
Mon. 21 to Mar. 26 .	Washington (D.C.) Dealers' Automobile Show.
APRIL	
Fri. 1 to May 3 . . .	Alcohol Motor Contest at Vienna, Austria.
Sat. 30 to Dec. 1 . .	Automobile Exhibition and $100,000 Aeronautical Contests at the St. Louis (Mo.) World's Fair.



THE BUGVILLE ENDURANCE RUN.

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OF MECHANICAL AND TECHNICAL IMPORT

By Igniter

It is most apparent that the vertical four-cylinder gasoline engine is to be the vogue for 1904. As the details of next year's models are made public, both in this country and abroad, it becomes evident that present tendency is almost unanimously in favor of this type. Whether this universal use of the four-cylinder is actually a technical advance, however, or merely a concession to an ill-advised demand, is much disputed. Many engineers consider that the relative advantages of different types are by no means settled.

There are at present at least seven cylinder arrangements in more or less common use in four-cycle gasoline automobiles—the single-cylinder horizontal, the horizontal opposed, the double horizontal opposed, the single-cylinder vertical, the two-cylinder vertical, the three-cylinder vertical, and the four-cylinder vertical. The two-cylinder vertical is built in two forms—with the connecting rods on the same crank, and with cranks at an angle of 180 degrees. In addition to the foregoing, there are several freak constructions, such as the engines of racing motor cycles, with two or four cylinders set about 45 degrees apart on top of the crank case, and the various constructions occasionally met with, employing more than four cylinders.

From a theoretical standpoint, the horizontal opposed motor would seem to combine a maximum of the advantages that are sought in gasoline engines. For one thing, it is always desirable to reduce the number of cylinders to a minimum, not so much to avoid ignition and valve and other mechanical complication as to reduce the proportion of cylinder wall to cubic capacity, and, consequently, to power. There can be no question but that the high fuel efficiency of single-cylinder engines—25 miles on a gallon of gasoline in the case of one 2,800-pound machine—is due to this small proportion of wall to capacity, it being borne in mind that the wall of a cylinder is directly proportionate to its diameter, while its cubic capacity increases as the square of its diameter. A single-cylinder, however, is in no manner capable of perfect balance and does not give sufficiently frequent impulses to insure steady running unless fitted with an objectionably heavy flywheel. A horizontal opposed motor with its two cylinders gives a perfect balance in moving parts and impulses with a minimum of cylinders, and is also fairly inexpensive to construct. I am inclined to believe, therefore, that it is most likely to become the final type.

The commonly urged advantages of the multi-cylinder vertical engine and disadvantages of the horizontal opposed are less real than seems usually supposed. To run over them briefly—the one-sided wear that occurs in a properly-designed horizontal engine cylinder is but a negligable percentage of the all-around wear that inevitably occurs in any engine cylinder; accessibility is a mere matter of design; valves can work vertically in a horizontal engine as well as in a vertical engine; splash lubrication cannot be employed, but its expediency is doubtful anyway, as witness the increasing use of oil cups to lubricate the cylinders of vertical engines.

A contemporary proposes the use of compressed air for cleaning automobiles and advocates the installation of small compressors and air tanks on machines for the purpose.

It seems to me that there is much to be said in favor of such a plan, for the larger vehicles at any rate, not alone for cleaning but for other purposes even more important. There is no doubt but what a small and efficient air compressor, feeding a well-arranged pipe system having rigid and flexible connections to meet different requirements, and provided with a tank in which a pressure of 100 pounds or upwards to the square inch would be maintained automatically, could be put to many uses on any high-power touring car. As a means of actuating controlling devices it would be invaluable. Manual steering, speed-changing, and braking are laborious and slow on all of our heavy modern machines and some means of lessening the work of the driver is strongly to be desired. A compressed-air apparatus could easily be devised which would steer or hold the wheels rigidly and which could be controlled by the action of a light lever on properly related air valves. Similar appliances could be developed for controlling the brakes and the speed changes. Such devices should, of course, be simple and positive, and should in no case interfere with normal control of the vehicle directly by hand. There would thus be no danger of accident through their becoming inoperative.

Starting the engine is another manipulation that can readily be performed by compressed air. Perhaps reversing the air through the compressor, causing it to run momentarily as an engine, would be the simplest means of effecting this result.

Besides cleaning the machine, the minor uses to which compressed air could be put are several. The inflation of tires is one, the inflation of cushions, should air upholstery increase in popularity as seems not unlikely, would be another, and the maintenance of any desired pressure in fuel and lubricating tanks a third. Even the signaling horn might be connected with a light tube so that it could be liberally sounded with a minimum of effort.

Pneumatic lifting jacks might be found practicable, and could either be movable, with a flexible connection, or permanently attached beneath the car.

With such a number of advantages to be gained by its use, the regular installation of compressed air systems on touring cars seems even more promising than if it were planned merely to perform a single minor function, such as cleaning, and its ultimate adoption by enterprising manufacturers is certainly probable. In the meantime, it should not be very expensive or difficult to experiment with the idea on machines not originally designed for its application.

The next great advance in the emancipation of the automobile from practical defects is likely to be the abolition of water cooling. Of all the complications incorporated in the power plant of the modern automobile, none is more objectionable nor more probably avoidable than this. The weight of the system, its cost, its complication, the danger of freezing, the danger of leakage, the danger of obstruction, the inconvenience, and the loss of power required to drive a circulating pump, are all against it.

Air-cooling systems are light in weight, inexpensive, and simplest to construct. They require practically no attention, are little subject to derangement, and require practically no power for their operation. The one objection that can be urged against them is their inefficiency. This, however, seems so far to have been more a matter of slipshod design than of inherent defect.

There are many air-cooled engines in highly successful use in which single cylinders generating as high as 8 horse-power are satisfactorily air-cooled, even though by extremely inefficient and ill-designed methods. As 8 horse-power to a cylinder is as much as is needed for any reasonable utility vehicle, it is certainly surprising that a majority of makers persist in the use of water-cooling.

The most significant feature of the cooling problem is that the measure of success so far achieved with air-cooling has been brought about without refinement of the method to its maximum efficiency. That is to say, builders of air-cooled engines have not seemed generally aware of the necessity for combining radiating members of high heat conductivity with a surface of great extent and maximum radiating efficiency per unit of area.

One of these days some maker will probably do a little quiet experimenting and surprise us by building an engine, the cylinders of which will be plain steel shells, with large diameter flanges of copper or some metal of even higher heat conductivity, finished with a surface that will radiate heat at a rapid rate, and arranged to operate most effectively in connection with a fan for inducing a powerful draft at all vehicle speeds. Then it will be discovered what the possibilities in this direction really are.

As reports come year after year of railroads that are building in Africa, in South America, in Mexico, into the great Australian desert, through a particularly arid section of our own Southwest, and elsewhere, the question comes to mind whether it would not be advantageous, in

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opening up sparsely-settled and little-explored quarters of the earth, to substitute for railway construction the building of automobile roads.

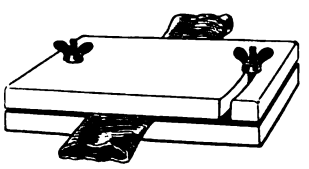
An automobile road—not a horse road or mere wheel tracks through a jungle, but an excellent, well surveyed, hard-surfaced, and thoroughly-drained road—would certainly cost far less to build and maintain than the poorest of track construction. There would be no rails or ties to buy, no ballast needed, and the cheapest of labor could handle the work. Bridges could be lighter, and therefore less expensive; and grading, excavating, and tunneling would be reduced to a minimum, as the automobile is superior for grade-climbing to either the locomotive or the horse. Maintenance would be nominal if a tarred or asphalted surface were employed and nothing but rubber tires permitted to come upon it. Rubber tires, moreover, are found to last thousands of miles on such a surface.

To its other advantages, the system suggested would add perfect flexibility. Neither switches nor signals would be required, the expense of conducting the service would be always in exact proportion to its magnitude at any given time, and vehicles could readily leave the main line for side trips on less perfect or temporary thoroughfares.

And finally, should a time come when, owing to development and settlement of the country, a service capable of carrying a heavier traffic were required, it would immensely facilitate the railroad construction to carry it along the line of the automobile road, simply making detours to avoid the heavier grades.

An innovation in spark plugs that is coming into vogue is the use of a short and very stiff helical spring at the outer end of the porcelain to keep it tightly in place, while allowing expansion. Breakage of porcelains is said to be avoided by this means.

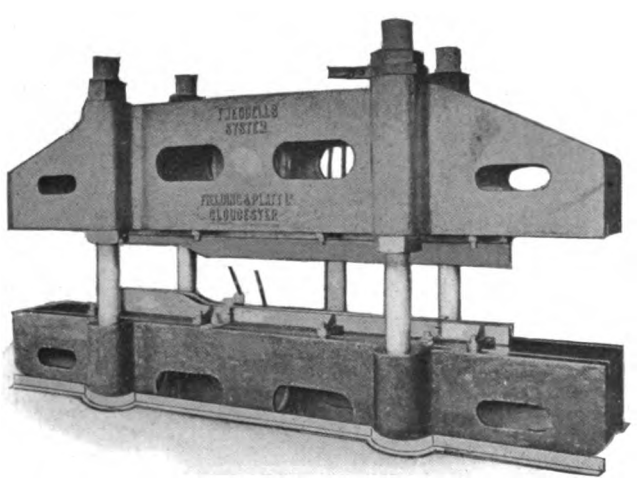
A German firm has brought out a useful press for applying patches to punctured inner tubes. With this simple device, it is easy to apply patches much larger than can be successfully placed by hand alone.



A rumor comes from abroad to the effect that in France a new fuel has been perfected for the internal-combustion motor. It is said to be less expensive than gasoline, and is supposed to be ordinary kerosene "modified by a physical process." The specific gravity is 72 degrees.

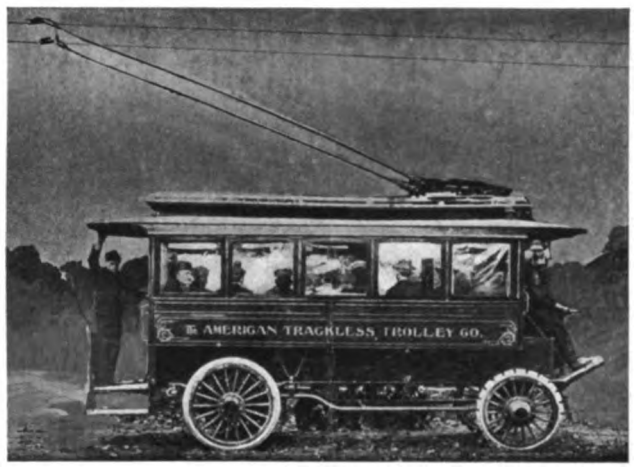
Recent contests demonstrated that the auto boat manufacturers are making progress with respect to avoiding the heavy swell wave which has been so noticeable in former races. Racers like the Mercedes, Lutèce, Musette, and Vingt-et-Un cut through the water like big fish without dashing up the wave and foam.

The accompanying illustration shows a hydraulic press such as is coming into extensive use for forming automobile frames out of pressed steel. By this method, a side or cross member of an automobile frame is formed at one operation from a piece of red-hot sheet metal.



To preserve pneumatic tires from oxidization and consequent cracking during the Winter, it is recommended that stored machines be jacked up sufficiently to take the weight off the wheels. The tires should be moderately inflated and protected by close-fitting covers. A moist atmosphere a little above the freezing point is desirable, as heat and dry air are the greatest enemies of rubber.

In Scranton, Pa., the first trackless trolley system to be installed in the United States has just been completed and is now in successful operation. In preliminary trials,



speeds up to twenty miles an hour were attained and it was demonstrated that the twenty-passenger vehicles could easily be run fifteen feet to either side of the conducting wires. The current is collected by two poles with horizontal wheels, pressed apart against the wires. A 120-volt current is used, thus entirely avoiding the dangers due to the higher voltage of the ordinary trolley wire. The cost of the line construction was about $1,500 a mile, while the coaches cost $2,600 each. The only other outlay was for the power plant. A feature of the system is a removable line extension by which a freight vehicle can run a hundred feet or more to a distant store or warehouse. An additional advantage is that freight and passenger cars can be operated simultaneously—the former merely pulling off their trolleys momentarily, to permit the more rapid passenger vehicles to go by.

Near Schenectady, N. Y., the General Electric Company is about to establish a trackless trolley line, extending from Newtonville to Loudonville.

To deodorize gasoline or kerosene it is recommended that the liquid be mixed with water, lead oxid, and caustic potash, in the proportion of 220 pounds of the hydrocarbon to 44 pounds of water, 3½ pounds of the lead oxid, and 20 pounds of the caustic potash. If the whole is shaken violently for about an hour and the admixtures then settled from the oil, the latter will be absolutely inodorous.

A new mechanically-operated inlet valve that has appeared on the automobile horizon is one in which the valve mechanism momentarily releases the spring pressure instead of positively opening the valve. By this means, the advantages of mechanical and automatic operation are said to be combined—the valve being certain not to open until the necessary reduction of cylinder pressure has taken place.

The 18 horse-power Napier car for 1904 will be fitted with an ingenious air regulator for the carbureter, operated by hydraulic pressure from the cooling system. The faster the engine runs, the greater the pressure placed on the water in the cooling system, and this variation is caused to actuate a diaphragm that opens and closes the air inlets of the carbureter in accordance with the speed of the motor.

The season is now at hand when precautions against freezing must be taken by owners of water-cooled gasoline machines. The best formula for an anti-freeze solution is generally considered to be water and calcium chloride, in the proportion of a gallon of the former to five pounds of the latter. As this mixture has a tendency to corrode some radiators, it is usually advantageous to add a handful of lime to neutralize any free acid that may be present.

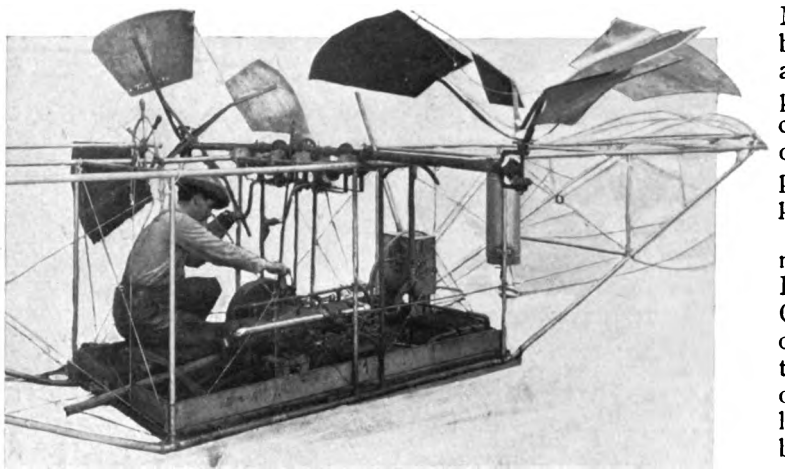
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MOTORING IN FLYING FORM

Recent experiments seem to indicate that man's next step in conquest of space and time will be successful aerial navigation.

The great obstacle to the fullest development of land transportation is the necessity of building roads suitable for vehicles to traverse. Water transportation is simpler, but the water does not reach everywhere it is desirable to go.

The air alone extends all over the earth and is without obstruction. It is the one means of transportation that would be available to all upon mere possession of a proper vehicle.



THE CAR OF THE GRETH AIRSHIP

Two distinct classifications are made by engineers of the machines with which they are attempting to solve the problem of mechanical flight. In one class is the dirigible balloon, not particularly new, but which has accomplished some very successful flights since the light and powerful hydrocarbon motor has been applied to it. The small lifting capacity, however, the expense of frequent renewals of gas, and the enormous surface opposed to rapid motion and exposed to wind currents have convinced most engineers that the balloon type of flying machine can never be relied upon for regular use.

On the other hand, aeroplane and propeller machines, although they have never proved brilliantly successful, have been generally selected by engineers of standing as the most promising type with which to experiment. Like the models which nature supplies—the birds and insects of the air—these are in every case heavier than the medium that supports them and accomplish flight by purely mechanical means.

Berliner, Bell, Langley, Lilienthal, Chanute, Wright, Maxim, and Groom-bridge and South are among the engineers of prominence who in recent years have conducted extensive experiments with aeroplanes and propellers.

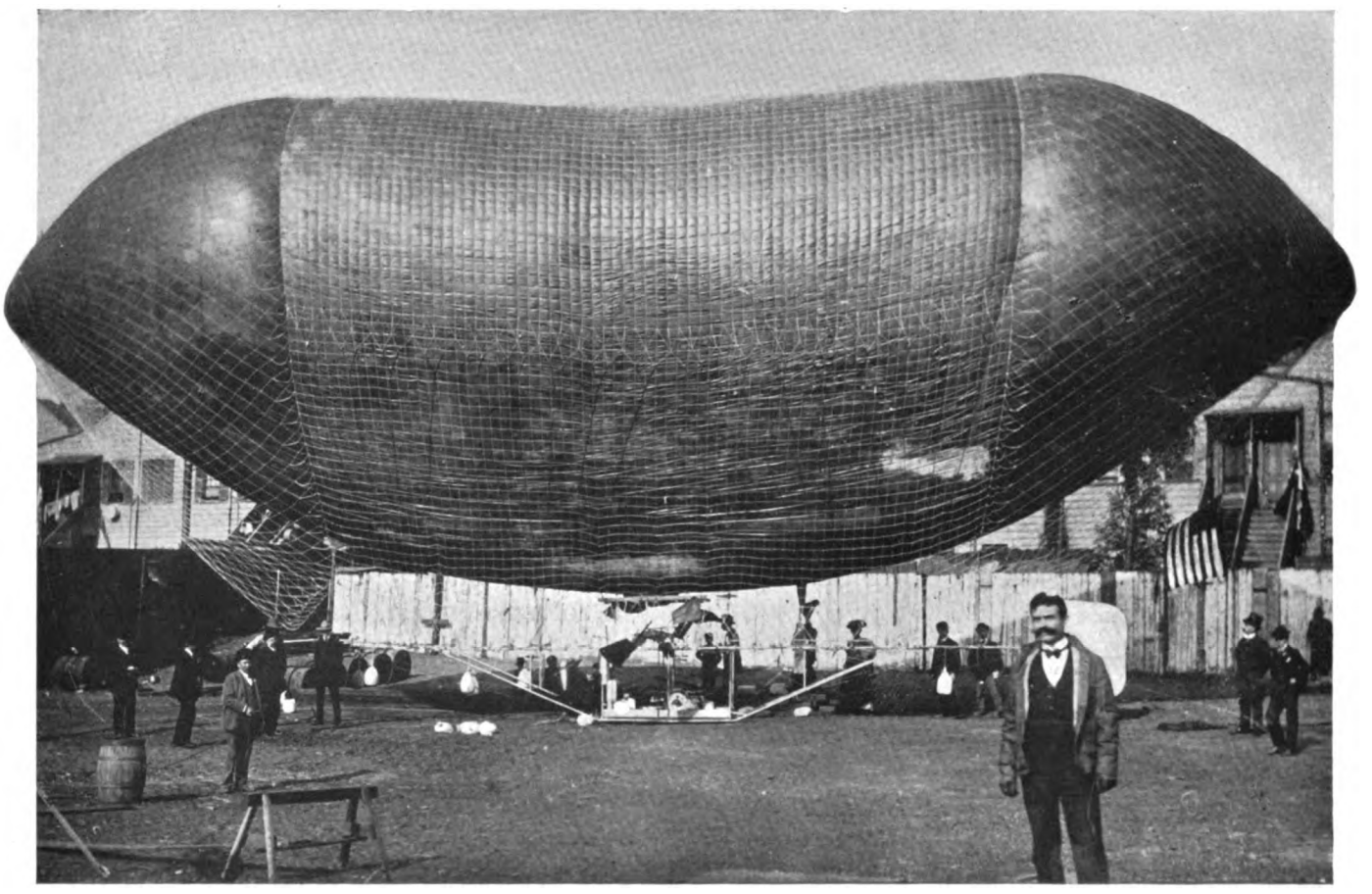
Stevens, Santos-Dumont, Barton, Spencer, Lebaudy, Dr. Greth, Count de la Vaulx, and others have applied themselves with equal diligence to the problems of the dirigible balloon.

The measure of success that shall at last be achieved, and whether or not the final type is to be either of the foregoing, or a combination of the two, are matters that time alone will disclose. Meanwhile, it is at least interesting to follow developments as they come, and it is to be hoped that the two $100,000 prizes now offered for a successful machine will urge inventors to the point of achieving results that at this moment certainly seem to be within reach.

THE AIRSHIP'S DEBT TO THE AUTO

From an automobile to an airship would sound like a far cry. Nevertheless, the American airship owes a recent successful flight to the automobile.

Sunday, October 18, of the present year, Dr. August Greth sailed over the city of San Francisco at an altitude ranging from 1,000 to 2,000 feet in an airship of his own invention. The power for the machinery of his strange aerial craft was supplied by a common Brennan motor borrowed from an old automobile.



DR. GRETH'S DIRIGIBLE BALLOON BEFORE THE TRIAL

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It was not as fine a motor as the one used by Santos Dumont, but it was the best obtainable in the limited financial resources of the inventor, and it served to make his ship fly, to the amazement and wonder of a whole city.

In a series of circles that plainly evidenced the dirigibility of his air carriage, Dr. Greth sailed from about the center of San Francisco (Eleventh and Market streets) to the military reservation just within the Golden Gate. The hour was almost noon and practically the entire population of the town was in the streets, faces upturned, eyes bulging at the spectacle of a man navigating a capsule of gas in midair. In the thoroughfares below, and following as closely as possible the course of the airship, was an automobile driven by B. P. Saxby, a fellow aeronaut.

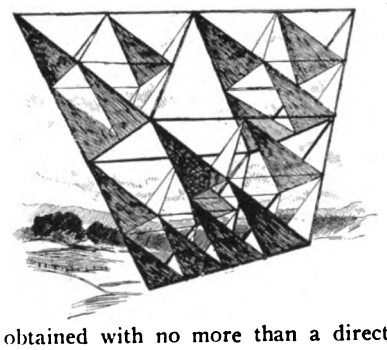
Saxby arrived at the Bay shore, near Harbor View, just in time to see the crew of the life-saving station take Dr. Greth from the network of his balloon. Dr. Greth had stopped the motor in descending, and the ignition failed when he attempted to start it going again; so, deprived of the use of his propellers, he missed alighting on dry land by 300 feet. But the trip was made without damage to himself or the machine.

Dr. Greth's airship consists of a spindle-shaped balloon, 82 feet long and 25 feet in diameter, supporting a steel framework with wooden floor, which is only six or seven feet from the balloon and holds a car 7 feet long and 4 feet in both height and width. In this small car rests the automobile motor and rides the doctor.

The inventor says that when his machine is equipped with an air-cooled motor of 30 horse-power (the present motor is water-cooled and of hardly more than 7 horse-power) he will sail from the "Examiner" Building in San Francisco to the "Examiner" Building in Chicago, thence to the St. Louis Exposition, where, he is confident, he will win the prize of $100,000 and the gold medal that are offered for the most successful airship.

AERIAL TOPICS

Alexander Graham Bell, inventor of the telephone, and associate of Langley in his earlier aeronautical experiments, has lately been making serious efforts to solve the problem of mechanical flight. So far, his investigations have been carried on by means of kites, which he considers furnish much valuable data. He has evolved a tetrahedral form of kite, which is claimed to be the first ever designed, in which indefinite multiplication of area can be obtained with no more than a directly proportionate increase in weight. These kites fly with extraordinary steadiness, and one large enough to carry a man has been successfully flown from the stern of a steamboat.



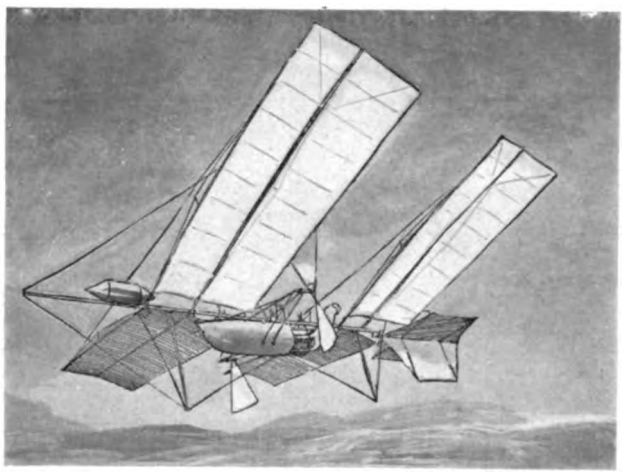
Emil Berliner, the famous inventor of the Berliner telephone and the gramophone, recently devised a small flying machine model that was propelled by a rocket-like stern, and which accomplished several successful flights.

Count de la Vaulx, accompanied by Count d'Outrement, recently sailed in a balloon from Paris to Hull in less than eighteen hours. This is the first time a balloon trip from France to England has been accomplished. The Count has now undertaken to provide one of his balloons, the "Djinn," with a motor and propeller. As this balloon is of the ordinary spherical type, it will be interesting to see what results are to be obtained.

The Aero Club, of England, is following out its fall programme. Meetings were held at the Crystal Palace, October 29 and November 12, 21, and 28. An anniversary dinner was given at the Carlton Hotel, November 25. At least two balloons were to have been sent up at each meeting, and for November 21 and 28 arrangements had been made for motor-car pursuits of the balloons, prizes being given for successful captures. Notice is to be given later of other events, monthly dinners, and discussions.

The latest aerodrome designed by Professor Langley, of the Smithsonian Institute, was given an unsuccessful trial over the Potomac River during October. Immediately after leaving the launching boat, the machine plunged into the water, owing to a defect in the launching device. Professor Manley, who occupied the machine, suffered nothing more serious than a wetting.

Messrs. Groombridge and South have evolved an airship with two sets of five superimposed aeroplanes, in which several new ideas are incorporated. The machine, which is 8 feet long by 60 wide, carries seven propellers—three on each side and one overhead. Each propeller consists of a vane that advances edgewise and returns flatwise in rapidly-recurring strokes. As soon as two



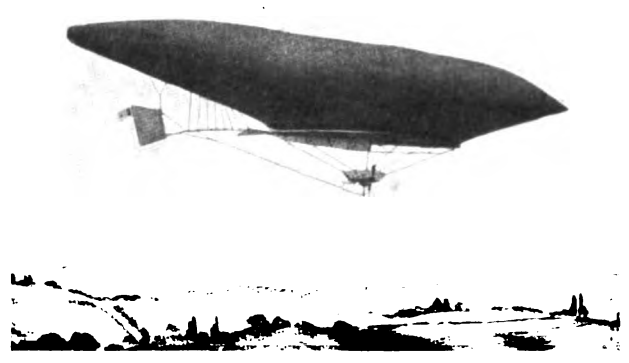
ONE OF LANGLEY'S AERODROMES

20 horse-power internal-combustion engines are connected with the propellers, a practical trial will be undertaken. The machine is to wheel along the ground until it attains speed enough to start.

The airship which is being constructed by Dr. Barton, with a view to its adoption by the German army, is nearing completion. The supporting part will be a cigar-shaped balloon, 170 feet long, with a gas capacity of 230,000 cubic feet. Three 50 horse-power hydrocarbon engines, disposed on a 123-foot deck—forward, amidships, and astern—will furnish power to six propellers. Thirty aeroplanes, each three by fifteen feet, will be provided for raising or lowering the machine. The total weight, with passengers, will be seven tons.

Through the efforts of Santos Dumont, the Brazilian Congress has offered a prize of $100,000 for a successful performance in the international aerostatic contest, to be held at Rio de Janeiro from May 31 to December 31, 1905. The requirements are that the airship shall proceed from the Military Academy in Rio de Janeiro, and leave a card at the Naval School, on an island in the harbor. An answer to the card must be secured, and Mount Lucre must be doubled on the way back to the city.

On November 12, Pierre Lebaudy's airship, Le Dirigible, made the trip from Moisson to Paris in 1 hour and 40 minutes. The distance is 35 miles direct, but the balloon traveled 70 miles,



THE LEBAUDY DIRIGIBLE BALLOON

owing to adverse winds. The gas bag is 180 feet long, and carries 1,000 pounds. Power is furnished by a 40 horse-power Mercedes engine.

Santos Dumont's new racing balloon, the "Omnibus," is about ready for a trial trip—in fact, has already been tested at the end of a seventy-foot rope. The envelope, which is 159 feet long and 23 feet in diameter, holds over 70,000 cubic feet of gas and will support fourteen passengers. A 4-cylinder, 60 horse-power Clement motor supplies power to two 12-foot propellers. Four aeroplanes, six feet square, and a rudder with a surface of ten square yards, are the means of steering. The machine will be entered in the St. Louis World's Fair contest, but is to have several preliminary tests before the French Minister of War.

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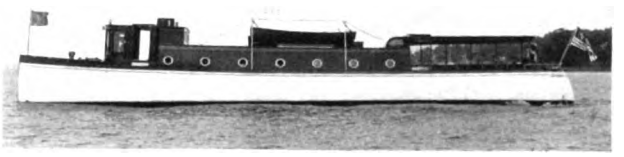
MOTORING ON THE WATER

By W. P. Stephens



The users of gasoline launches about New York are looking forward eagerly to the practical trial of a new type of motor, differing considerably from the regular gasoline launch engine. The fuel used is kerosene, vaporized and exploded in the cylinders by an electric spark, precisely as in the case of gasoline; but the motor is practically of the one-cycle type, if such a term is permissible, giving an impulse for every movement of the piston.

The general plan of the motor is similar to that of the ordinary steam marine engine, the cylinders being closed at both ends, with piston and connecting rods, and supported by steel standards on an open base. The kerosene is vaporized in a separate chamber and injected into each cylinder in a manner which avoids the accumulation of soot that has heretofore proved such a serious difficulty with this fuel. It is injected alternately at each end, driving the piston upward and downward. The first of the Forex motors, as they are called, was built a couple of years ago and has been run continuously at the trying work of driving a dynamo for electric lighting; proving reliable and regular in operation.



LA MASCOTTE

At the present time seven of these motors, each of 60 horse-power, are under construction for marine use, but, owing to strikes and the difficulties incident to new inventions, none is yet ready for installation. Four of these motors will be used, in pairs driving twin screws, in a cruising yacht of 115 feet length now building by Samuel Ayers & Sons at Nyack, N. Y., for J. H. Hanan, from designs by William Gardner. Two are intended for a similar yacht owned by M. G. Foster, of New York, and building at the same yard, also from Mr. Gardner's designs. She will be 91 feet over all, 75 feet waterline, 14 feet in breadth and drawing 4 feet 6 inches.

A novel arrangement of power will be tried in this craft, the kerosene motor driving a powerful dynamo, which may be used for the repletion of storage batteries and which may be so connected as to operate from the batteries as an electric motor in driving direct on the propeller shaft. It will be possible to drive the launch by means of the kerosene motor only, or through the electric motor only, or by the two combined where a special effort is required. When at anchor or under slow speed the engine may be so connected as to drive the dynamo and replenish the batteries.

The present year has witnessed a very marked change in launch design, the forerunner of material improvement in the near future. From its first inception the cabin launch has resembled nothing so much as a floating trolley car, the sides of the long cabin house being composed of an unbroken row of plate glass windows. While open to serious objection on the score of weak construction and general unseaworthiness, this type of launch has until very recently been almost universal. There is at the present time a marked disinclination on the part of launch owners to accept this conventional type as turned out in stereotyped form by so many builders, and a demand for special designs in which seaworthiness and convenience of arrangement are the leading features. It is becoming the custom to seek the services of the leading yacht designers.

The launch here illustrated is owned by F. C. Havens, of San Francisco, but was built by the Electric Launch Company, of Bayonne, N. J., and has been used during the past Summer about Long Island Sound. She was de-



DAN D., A BOSTON HARBOR FLYER, HEADED FOR HULL

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signed by H. J. Gielow, of New York, a designer previously well known in connection with the larger classes of steam yachts, who has recently given much attention to gasoline launches and auxiliaries. While intended for cruising, the speed demanded is higher than that commonly obtained in this class of launch, the trials showing a speed of 16 miles.

In order to obtain that safety and seaworthiness which is necessary for the open waters of the east end of the Sound, the freeboard is quite high, and in addition the usual glass house has been dispensed with and the sides of the hull carried up to form the sides of a comparatively low cabin trunk. The sides are pierced by large hinged deck lights, giving light and air but closing tightly in bad weather.

The yacht is 65 feet in length, 10 feet in breadth, and draws 3 feet 4 inches. She is driven by a Craig motor, four-cylinder, four-cycle, of 70 horse-power. The arrangement is novel, but very convenient, especially for Summer use. There is quite a small pilothouse forward, with a raised floor. Just abaft this is the galley, with ice-box, pantry and sink, and adjoining it a toilet-room. The engine-room extends for the full width of the boat, giving plenty of space about the engine and a passage fore and aft on the starboard side. It is located immediately abaft the toilet and galley. Just abaft the engine-room is the main saloon, 12 feet long and 10 feet wide, with good headroom and wide, comfortable lockers. Abaft the saloon is an open cockpit, 15 feet long, covered by an awning when desired; there is ample room for armchairs and this part of the boat makes a most comfortable resort in warm weather.

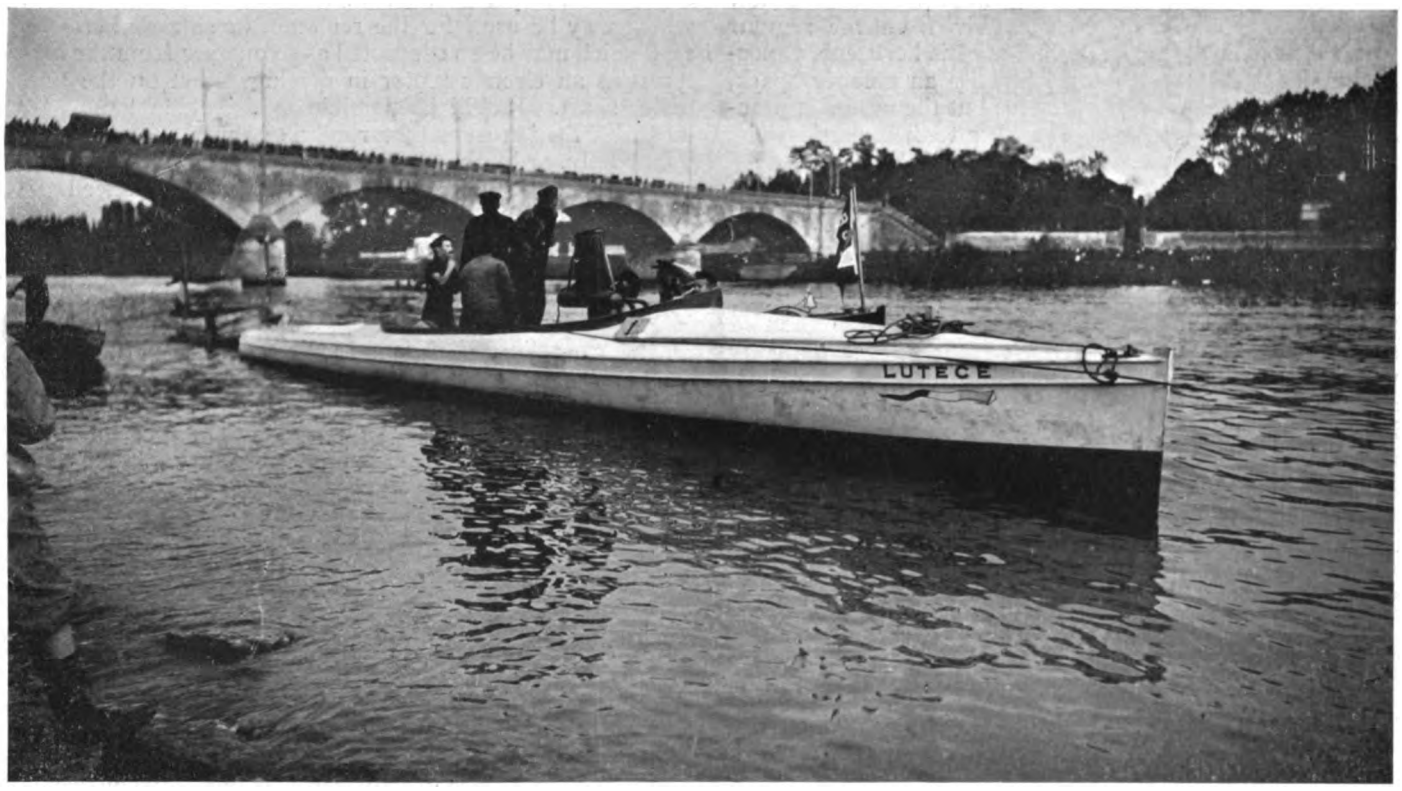
La Mascotte has proved very satisfactory in the course of a season's use, her hull and powerful engines having enabled her to go where she would, regardless of weather.

An interesting instance of the influence of automobile practice on the established methods of marine work is found in the cruising launch Delilah, designed and built this year for W. F. Morgan, of Brooklyn, by the Electric Launch Company, Bayonne, N. J. Mr. Morgan is an enthusiastic motorist and as a practical driver of a gasoline car is fully conversant with the perfect system of control now found in the high class cars. In planning his launch he has adopted the same system, thus placing the control of both boat and engines in the hands of one person.

The steering is done from a small bridge deck, just abaft the ordinary pilothouse, which is used as the forward saloon, and forward of the main cabin. The motors, two Buffalo engines of 25 horse-power each, driving twin screws, are placed well forward, just under the bridge deck, and all gear for starting, stopping, reversing and controlling the speed is carried up through the deck, the levers being within easy reach of the helmsman as he sits at the steering wheel on the after end of the pilothouse. The plan has proved very satisfactory in practice, the helmsman governing the direction of the yacht and at the same time having perfect control over the speed and motion of the engines. With the twin screws the launch can be maneuvered to great advantage.

A similar end has been attained by J. A. Serrell in his 66-foot cruising launch, Rampant; the motor, a 25 horse-power Globe, being located amidships, and just above it being a small elliptical pilothouse, extending above the cabin roof and with its floor just clear of the cylinder heads. The reverse wheel and throttle are located on either side of the steering wheel, while the switchboard is just at the feet of the helmsman. After the motor is once started from the engine-room it can be handled entirely by the helmsman.

For the true speed launch which is now coming into general favor there seems nothing better than an exact copy of the steering and governing mechanism of the motor car, a special seat for the helmsman, with inclined standard just in front of it, carrying the steering wheel, reverse wheel, throttle and spark control.



THE WINNER AT MAISONS-LAFFITTE

FAST MOTORING ON THE SEINE

PARIS, Nov. 15.—Thirty-two kilometres (twenty miles) an hour was the rate at which the automobile boat Lutèce won the recent 100-kilometre race at Maisons-Laffitte. On the second round of the race both the Lutèce and the Mercedes attained 35 kilometres an hour.

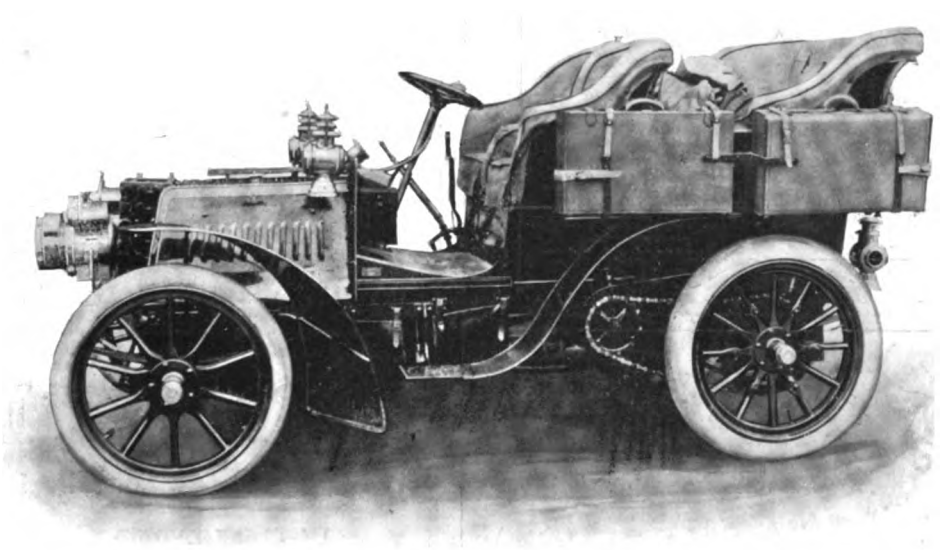
The surprise was that the famous Mercedes did not win. The "slight explanation" is to the effect that the Mercedes, in order to avoid a boat on the Seine, ran close to one of the banks and caught her propeller in some wires. By this she lost about two hours, and was, therefore, practically out of the race.

The Lutèce belongs to MM. Panhard, Levassor, and Tellier, has a Panhard-Levassor, 80 horse-power motor, and hull made by M. Tellier. She covered the 100 kilometres in 3 hours 10 minutes. Second place in this division (racing class) was taken by the Musette, owned by MM. Vinot and Deguingand, with 18 horse-power motor made by this firm, hull made by M. Seyler. Time, 4 hours 24 minutes 57 2-5 seconds. The Mercedes, owned and driven by M. Charley, is of anywhere from 35 to 60 horse-power, according to who says so. The Mercedes' time for third place was 5 hours 15 minutes 28 seconds, although, on account of the accident, it should not be compared to the times of the other two boats.

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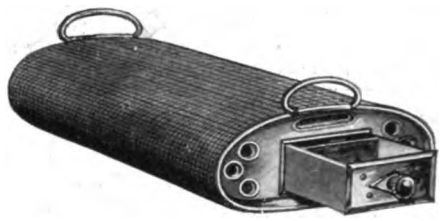
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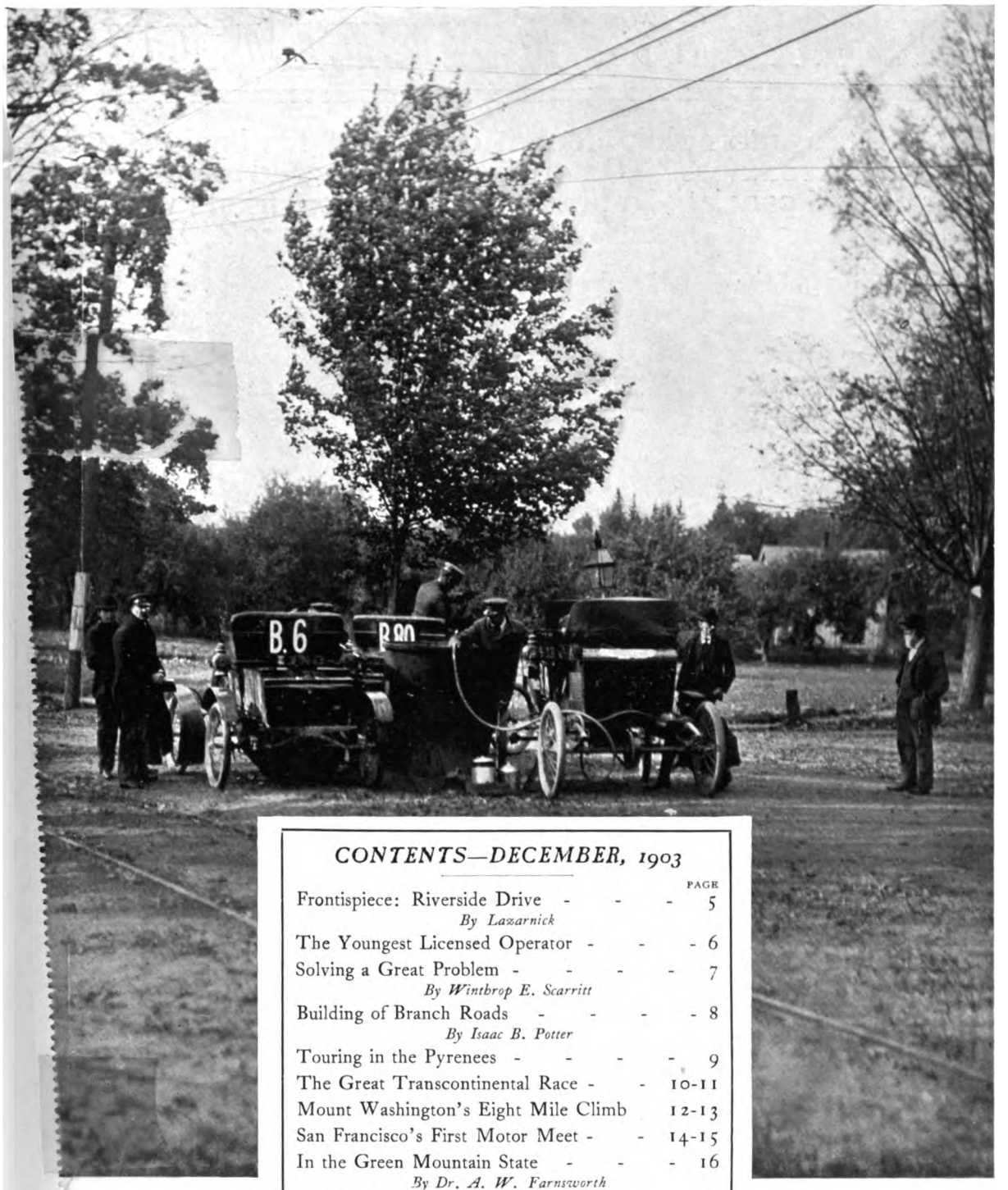
A suit was commenced on Oct. 22d, against a dealer, and against a manufacturer infringing United States Letters Patent No. 549,160.

A suit was commenced Nov. 5th, against a purchaser and user of an automobile infringing the same patent.

Association of Licensed Automobile Mfrs.

No. 7 EAST 42nd STREET, NEW YORK.

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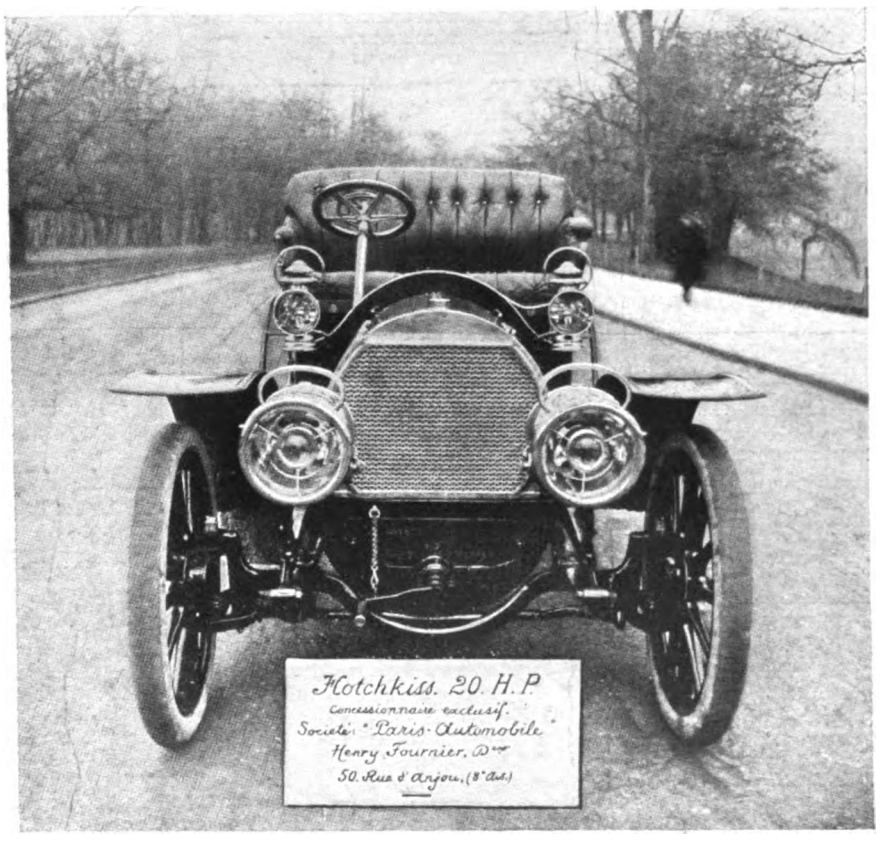


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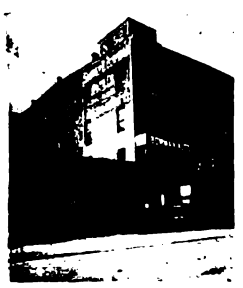
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It was only a question of time when it would become necessary to supply an advertising index in MOTOR, and with a list of over 200 patrons of our publicity columns we trust that we may be pardoned for having taken it for granted that that time has arrived. Motoring is the thing of the day, whether it be on land or water, and its followers embrace people whose wants are many. We commend to our growing thousands of readers a careful perusal of the following category of those who ask attention because they believe that they have something in which you may be interested. Perhaps you may desire to have another motor car, or perhaps you have yet to buy the first one; or mayhaps there is something in the accessory line still desired; or, again, you may be inclined to try another kind of tire; and should it be information as to the place where to go vacation motoring, that question will be answered very quickly. We endeavor to make our advertisements as attractive as the reading pages, for it is our belief that MOTOR is examined and read from cover to cover, and we aim to have everything harmonize toward a perfect magazine.

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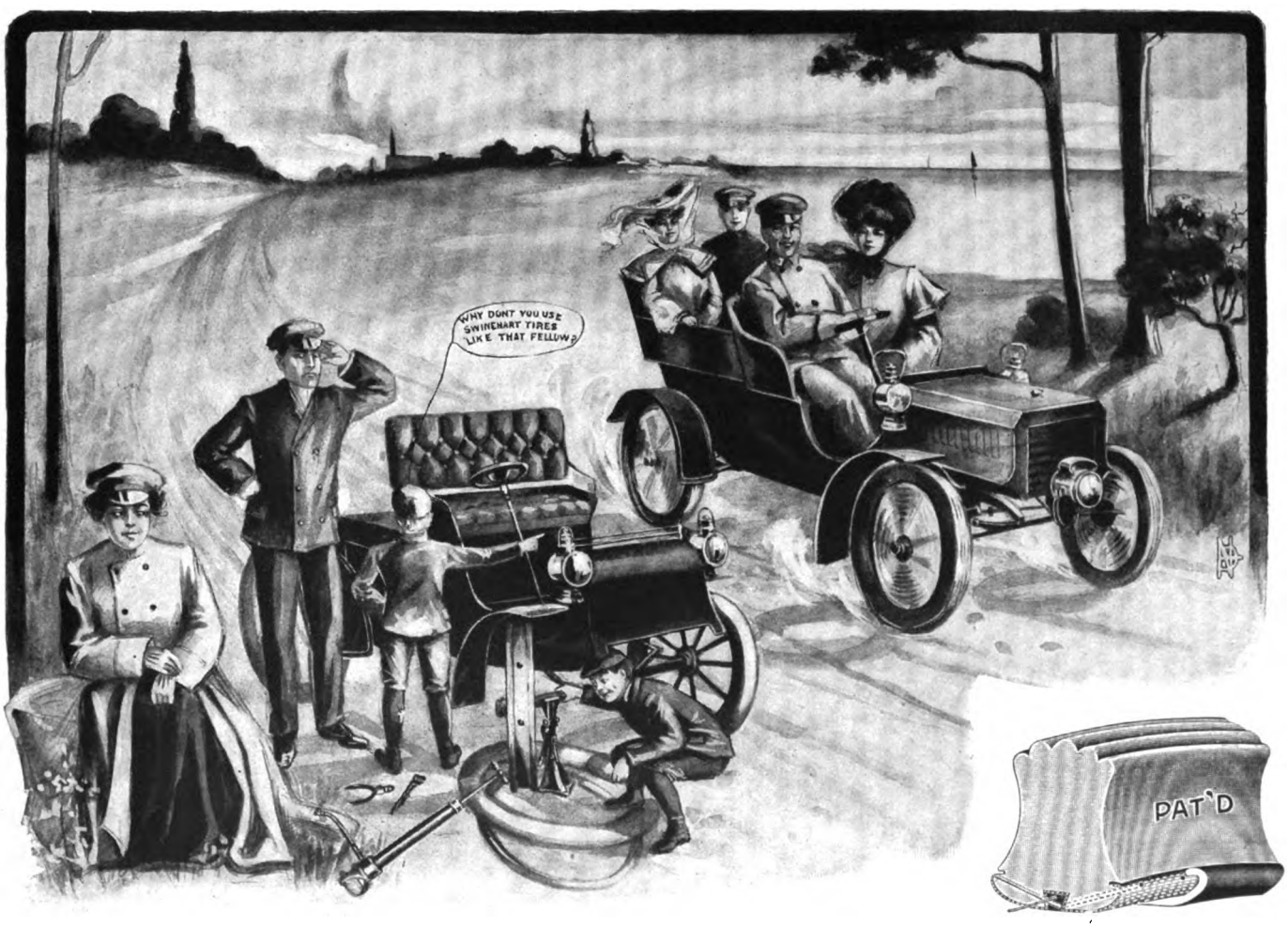
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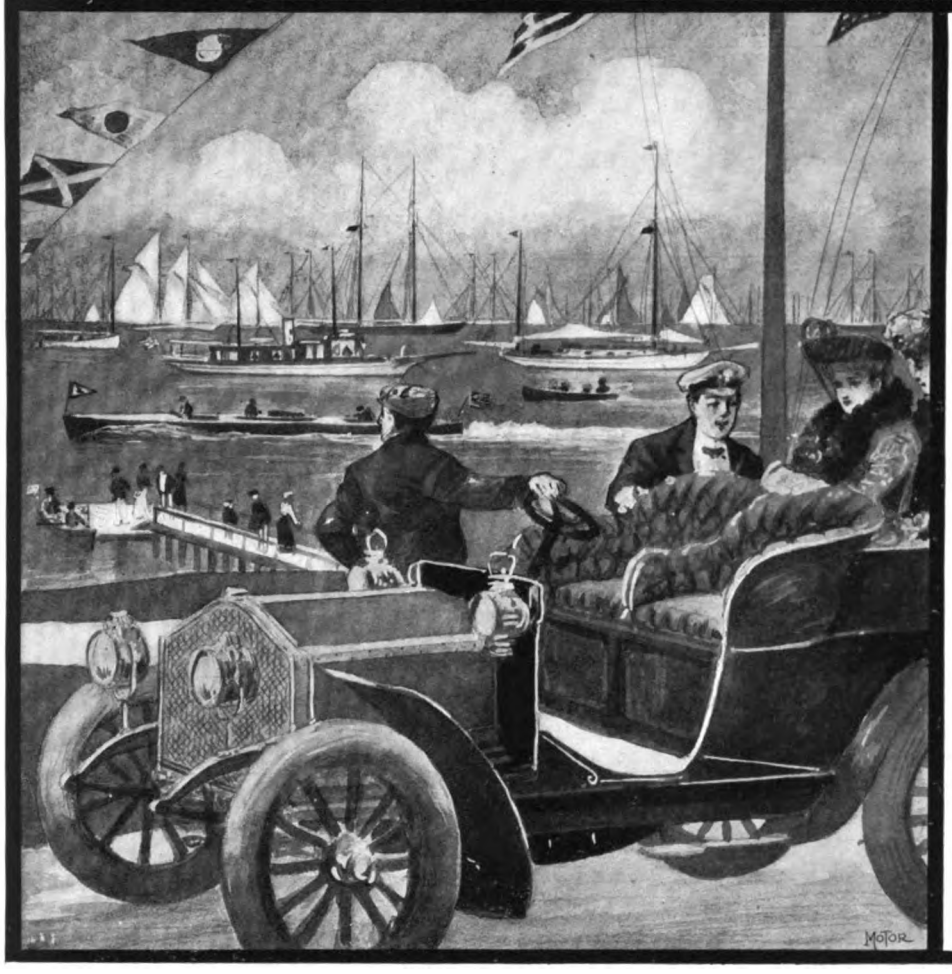
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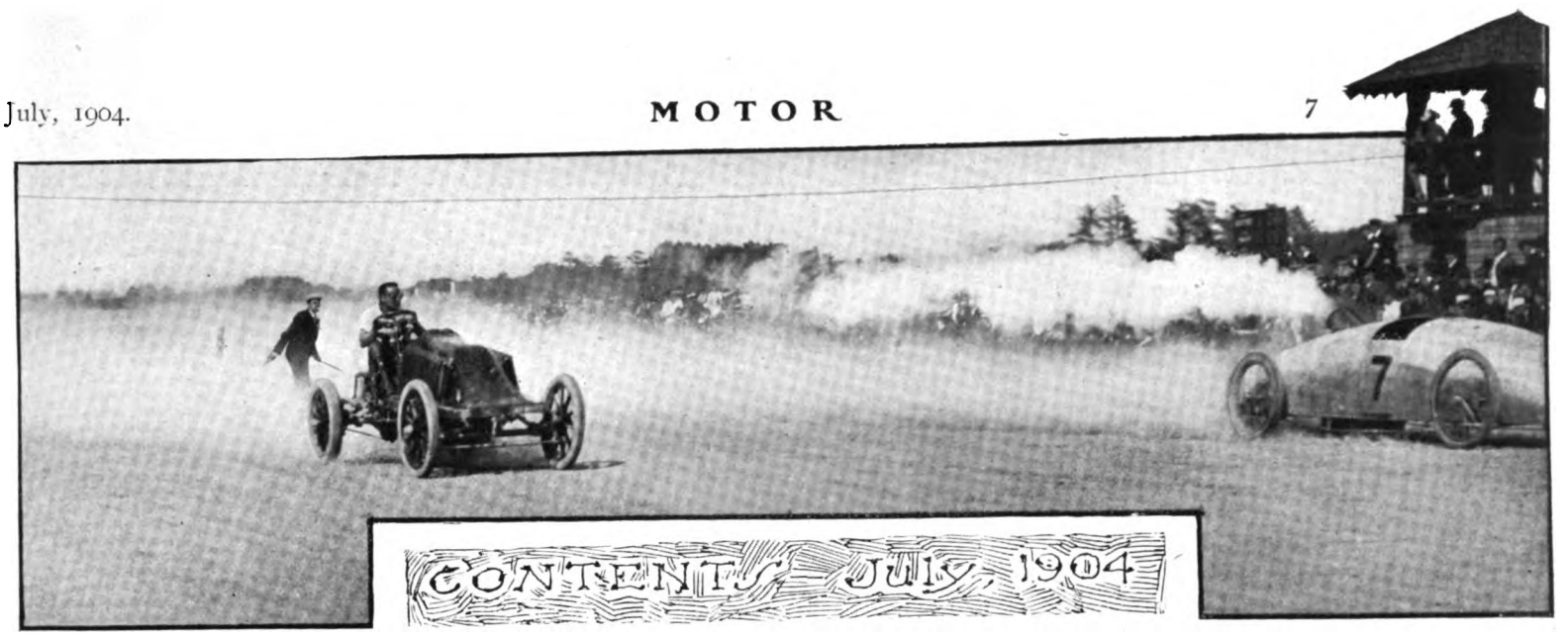
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A Monthly Magazine Devoted to Motoring of All Kinds.

Published by Star Company
NEW YORK BOSTON CHICAGO SAN FRANCISCO
Entered as second-class matter at the New York, N. Y. Post Office, March, 1904.

New Principal Address, 1789 Broadway, New York

Branch offices: Chicago, 214 Madison Street; San Francisco, Hearst Building, Market Street; Los Angeles, Examiner Building; Boston, 82 Summer Street; London, 5 New Bridge Street, Ludgate Circus, E. C.; Paris, J. J. Conway, Hotel Continental.

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Subscription Three Dollars ($3.00) Per Year.
Cable Address: Motoria *Telephone: 3900 Columbus*

Postage free in the United States, Canada, Mexico, Hawaii, Porto Rico and the Philippines. Postage to other countries, $1.00 per year extra. Address business communications and make checks payable to MOTOR. Anything connected with the editorial department should be addressed to the editor.

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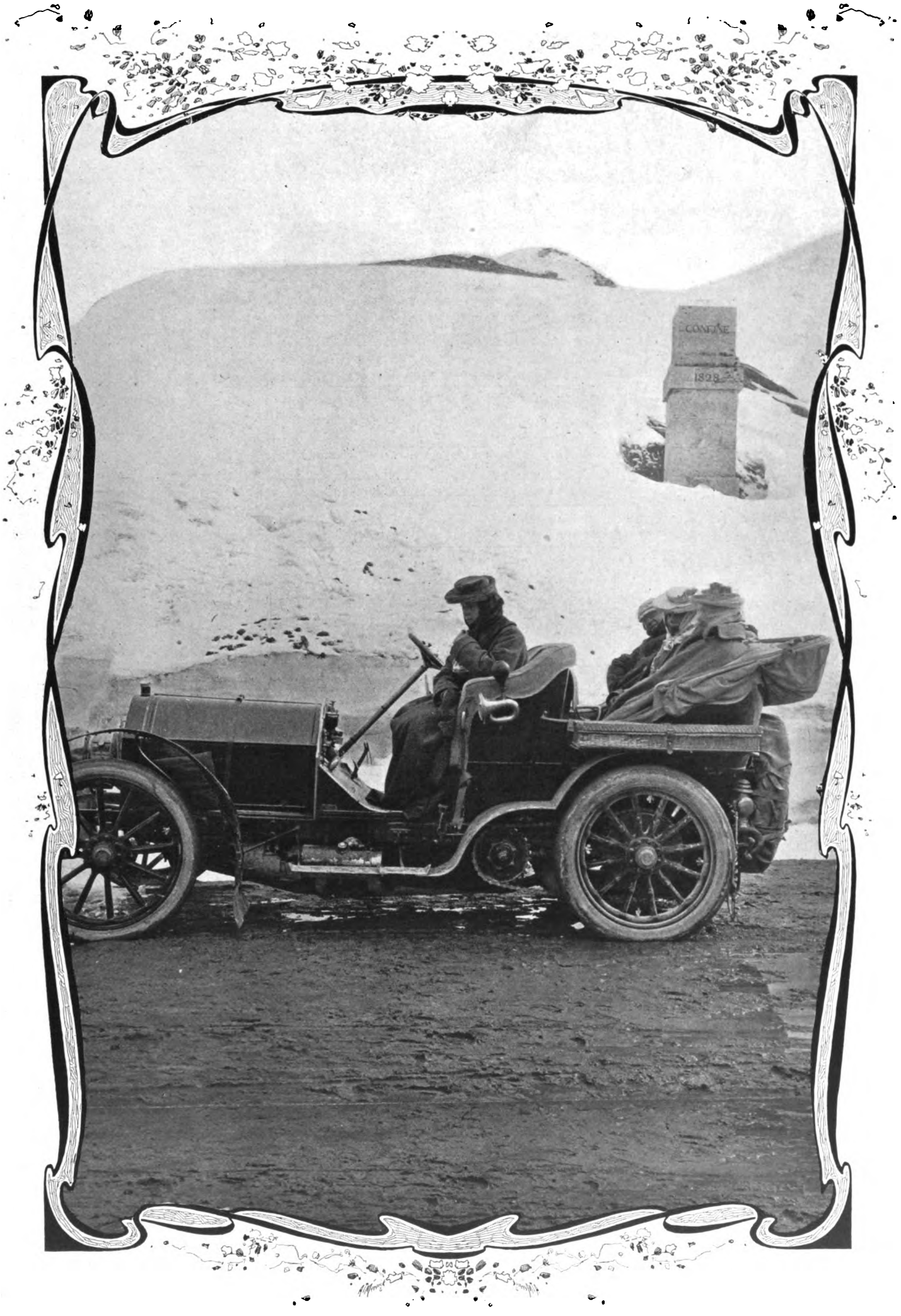


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MOTORING OVER THE ALPS: THE DESCENT ON THE ITALIAN SIDE

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M O T O R

DEVOTED TO MOTORING OF ALL KINDS

Vol. 2. No. 4 **JULY, 1904** **Price, 25 Cents**

THE MOTORING MAYOR OF QUAKERTOWN

By A. H. Chadbourne

History fails to report when the Mayor of Philadelphia first went a motoring, and his multitudinous duties have prevented him from looking over his records. The fact remains, however, that His Honor takes the keenest delight in the numerous spins he has enjoyed about the Quaker City.

That Mayor Weaver is a patron of the sport was well shown by his presence at the spring race meet held at the old historic Point Breeze race track, where so many entered and so few started.

Early in the day he was driven to the track in a White steamer, accompanied by Mr. Smyth, the Director of Public Safety, with Chauffeur Mogee at the wheel. The distinguished guests remained until the most important races of the day were finished. The exit of the party from the grounds was marked by the narrow escape of a coach dog, clearly shown in the foreground of the accompanying illustration.

MAYOR WEAVER AND DIRECTOR OF PUBLIC SAFETY SMYTH

Not yet has the microbe coccus automobilis entered the Mayor's veins in sufficient quantities to raise his temperature to the purchasing point, but it is no secret that as long ago as the fall of 1903, both he and the Director of Public Safety were violently attacked, and they could be seen taking frequent trips in a Winton touring car, guided in safety if not strictly within the speed limit by one "Leo," a chauffeur of local fame.

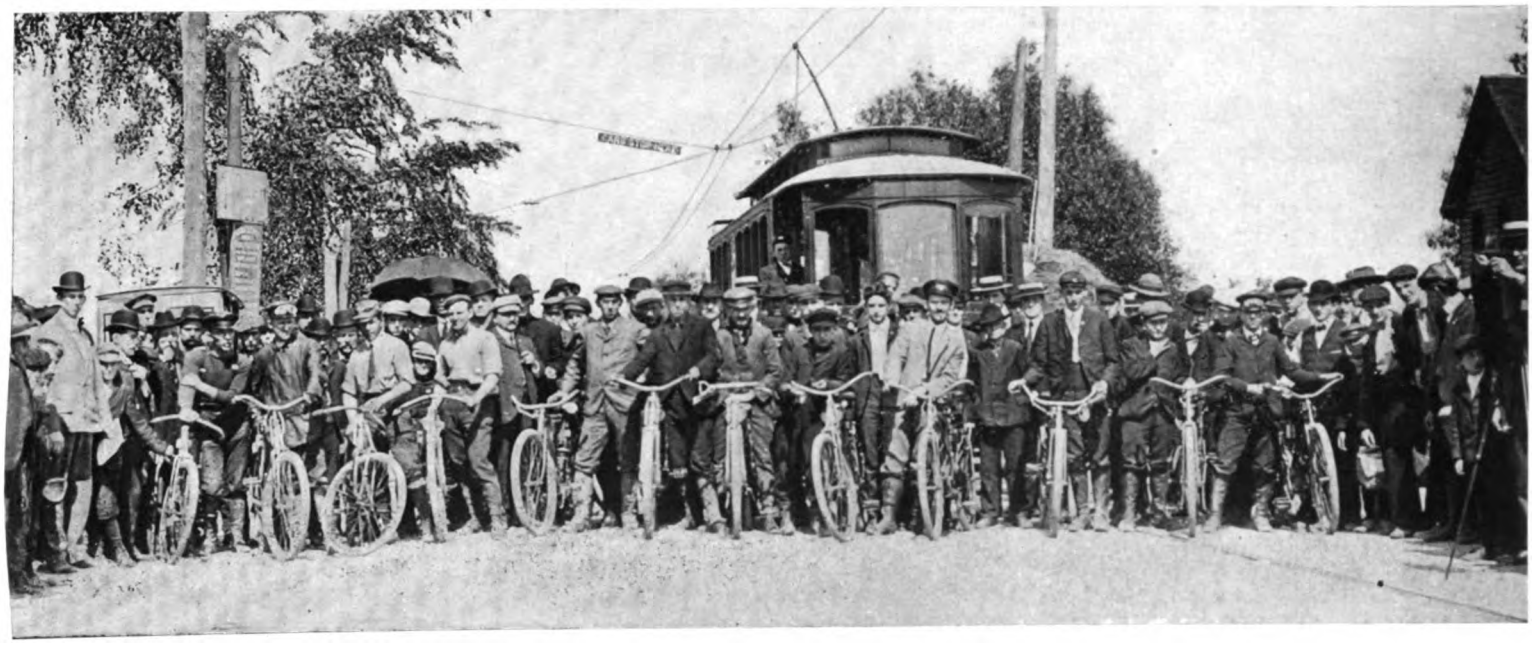
The good roads about the Quaker City are among its quickest assets, but the strings attached to some of them prove a constant drawback to the motorist. Nearly all the roads leading out of town are owned by turnpike companies, who not only charge exorbitant tolls, but place their toll gates so near together as to be a source of annoyance.

Old Lancaster pike, the natural outlet to the west, passes through Radnor and other townships where speed ordinances of ten miles an hour are vigorously enforced for many weary miles. Eastward the way to New Jersey is blocked by the noble Delaware. "Ferries there be in plenty, but yet the pity of it." When gliding up to the ferry-house to be stopped, held up for a heavy fee, and then to be abruptly ordered to "Put out your fire and get out and push!" Lucky is the party which finds the tide well up and the gang plank nearly level, for otherwise the number of deckhands and roustabouts who, like vultures or wharf rats, spring upon one from every side, and unasked, uncalled for, reach out with grimy hands on lamps, brackets and mud guards, pushing, scrambling and swearing 'till your car is on the boat, and then a dozen or more dirty hands are held beseechingly under your very nose until the unearned quarter is forthcoming. Once out of Camden, and really in New Jersey, the splendid roads of that State will pay one for the hardships of getting to them; and their beauty is enhanced ten fold because they lead to New York. Sometimes, when weather conditions are favorable and our hearts yearn for the flesh pots of Egypt, mindful of the aqueous barrier between town and country, we point our car northward and plough on to Trenton on the Pennsylvania side of the lordly Delaware. Shorter by nearly ten miles than the Jersey side, nearly half the distance is over country roads that test the power and endurance of the car. Yet, after a friendly shower, when the dust is laid and the sandy portions made more compact, the roads will seem fairly good, even on the poorest stretches, and the run can be made in less time and with infinitely less personal annoyance and disgust. Why the Philadelphia & Reading ferries should refuse to allow a gasoline car to be run on and off their boats between Philadelphia and Camden, when they are received and welcomed unquestioned on the ferries plying from New Jersey and Staten Island to New York, perhaps the "Motoring Mayor of Philadelphia" will some day be able to find out.

There is one run from Philadelphia that is free from annoyance, save the toll gate, and that is to Easton, fifty odd miles out the old York Road and through a country rich in agricultural wealth. Hills, vales, mountains, babbling brooks, shaded roads, broad stretching farms come and go as on we speed, and a friendly inn where goodly cheer awaits us is at the journey's end. Strange to say, this run is rarely taken, and one doubts if the beauties of the country far and away from town are known or half enjoyed by the motorist of Philadelphia.

Fairmount Park, beautiful indeed, studded with trees, fountains, and bicycle policemen, would seem to be the mecca for Philadelphia motor car owners, if one can judge from the number seen and arrested there daily. Report has it that the Mayor himself, accompanied by the Director of Public Safety, has been held up within its sacred bounds more than once; but what wonder, when a speed limit of seven miles an hour is absolutely enforced! Well known gentlemen, drivers of fine horses, can daily be seen speeding along at a 10 or 14-mile an hour clip, unchallenged and unfined, but let the motor car driver forget himself for a moment and the lynx-eyed "cop," on his high-geared wheel, who is ever riding with his nose to your rear mud guard, or instantaneously appearing from be-

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START OF THE 50-MILE ANNUAL JUNE ROAD RACE OF THE BUFFALO MOTOR CYCLE CLUB, WHICH WAS WON BY A. S. NOONAN, OF ROME, N. Y., IN 1:11:30. THIRTEEN RIDERS STARTED, BUT THERE WERE NO ACCIDENTS

hind some sheltering shrub, will take your number, and, convict-like, the number means your name.

If your speed, estimated by this worthy guardian of the law, did not exceed 7½ to 8 miles an hour, he will gruffly warn you, and turning his wheel, dash off after some other passing car, while the morning's mail will likely bring a summons to appear at the well known guardhouse to relieve yourself of $7.50.

No remarks allowed, no excuses, no discrediting of the correct estimated speed as reported; pay up and be forever a marked man. "Once arrested always in danger," is the motto thereafter.

One good-natured young man was relieved of $7.50 on sixteen different occasions within three months for alleged speeding in Fairmount Park. Sixteen times $7.50 would make park riding a bit high, even in a real city like New York, while in Philadelphia, where economies of all kinds are practiced, except in politics, certainly it is stupendous.

One cannot help wondering, however, how much danger would be added could the Park Commissioners take time to intelligently investigate the speed of horse-drawn vehicles, and raise the limit for all vehicles to the normal speed of at least ten miles an hour.

This may come in time, but no driver of a motor car to-day can expect to drive through Fairmount Park at that speed during his natural life, without depositing at least $7.50 toward the up-keep of tulip beds and rhododendrons.

To the credit of our motoring Mayor, let it be said that Fairmount Park is controlled by a Board of Park Commissioners of which his ex-officio membership gives him no especial authority or power.

THE FAVORITE RUN TO LAKE HOPATCONG

One of the most interesting and popular motoring runs in New Jersey is the one to Lake Hopatcong. Spinning over New Jersey roads is a delight which every motorist has tried who has been favored by opportunity, but the route to the Lake from Newark, through Elizabeth, Summit, Morristown, Rockaway, Kenvil, and along Mount Arlington Boulevard to Lake Hopatcong, is probably the one route which is most favored by motorists. Scenic beauty, and the good condition of the macadam roads along the way, have given it the popularity among motorists that it now has.

From New York City, after crossing the Hudson River, there are several routes to Newark. The one by way of Jersey City, while short, has its disadvantages. Another by way of Weehawken, Hackensack, Rutherford and Belleville to Newark is longer, but better in the matter of the condition of the roads. The route from Newark to Lake Hopatcong leaves via Newark avenue through Waverly to Elizabeth, where it turns sharply to the right through Salem, Connecticut Farms, Springfield, Summit, Chatham, Madison, Morristown, Morris Plains, Denville, Rockaway, Dover, Kenvil, to Hotel Breslin, which is delightfully situated on a high bluff commanding a magnificent view of Lake Hopatcong and the alluring country in its vicinity, and which, having a garage and other facilities necessary to the motor car, is a favorite objective of motorists.

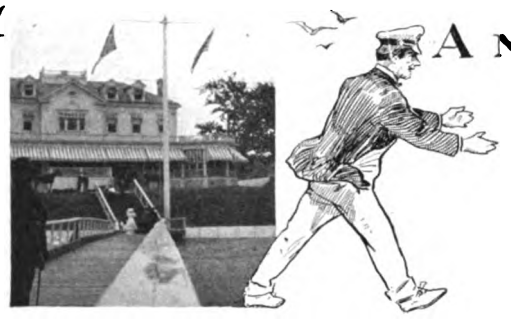


C. A. PHIZENMAYER, OF NEW HAVEN, CONN., AT THE WHEEL OF HIS 16-22 H.P. LOCOMOBILE. MR. PHIZENMAYER FIGURES AS ONE OF THE NEW YORK-BOSTON RECORD-BREAKERS

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How One Pastime Weds Another

By Igniter







When full tide summer, coursing through the veins
With vig'rous heat, high carnival proclaims,
Her matron beauties she doth bravely wear,
Jocund and glad, care free and debonnaire.

So sang the minstrel of the season's queen; and so, in fact, it is with thousands upon thousands of the queens of the motor world. They have gladly availed themselves of the motor's comforts whilst wintry winds did blow, and been thankful, not only for the pleasure it has given them, but for the satisfaction of knowing they were merciful to their horses when it would have been cruelty to have had one out upon the street; to say nothing of having kept it waiting its turn at opera or reception, in the bitter blasts and piercing sleet at night. But, with the return of summer, their gladness is turned to a carnival of joy, and the motor becomes an even more important factor.

Notably summer is the period of the year when the space-destroying luxury of the motor can best enable us to combine fitful, or continuous, residence in the city with frequent spells of life in the country.

Of all phases of this interchange, there is none superior to those which the modern country club supplies, especially if that club unites all the usual social advantages of a charming suburban neighborhood with the added opportunity of indulging in the use of the motor as applied to small yachts and racing boats. This is the latest field in which the motor has entered as a prime factor. The era of the motor has, in fact, only just begun, and it is widening every day; no sooner has it conquered on land than it is stretching out for the dominion of the sea (to say nothing of its attacks upon the air). This development in its career, as well as the innate love of all true out of door souls for a water frolic, has caused the Automobile Club of America to look around for some half-way houses which will enable its devotees, both on land and water, to enjoy all its possibilities.



"Aye, Aye! Sir!"

This year the club is not in a position to secure these to the full; for a club which unites within itself all that the summer life of the motorist on land and water requires, is not the work of a day, nor of even a year.

Its necessities are very comprehensive, to wit: It must be connected with its city headquarters by good roads; it must not be too far off; it must be in the choicest locality socially; it must be on the seashore, yet with a harbor well protected; it must be designed, fitted, and furnished both internally and externally to meet every need of the members and their ladies, and of their machines. And what all these wants are, only time and experience develop.

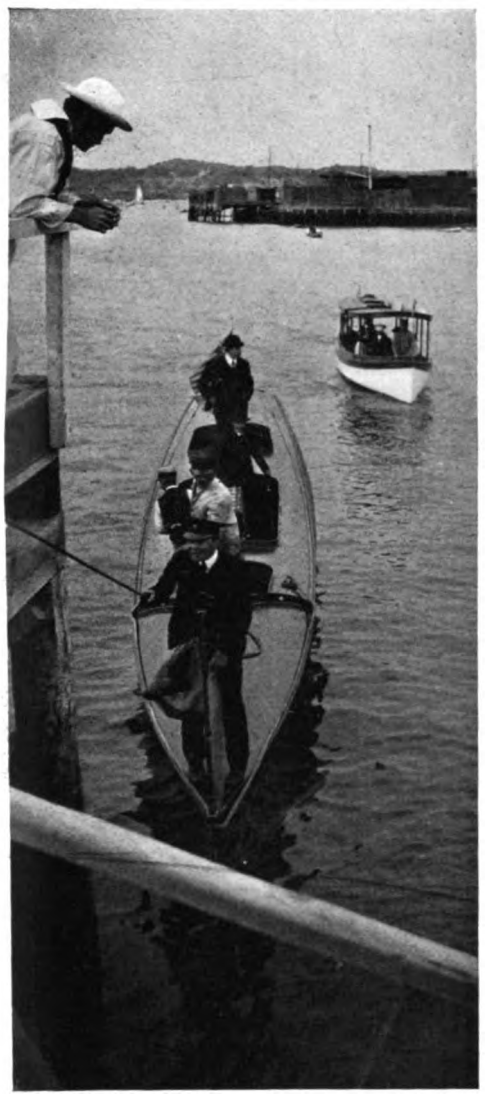
The committee of the Automobile Club of America have, therefore, done wisely to repress their desires for immediate consummation, and take a summer's experience among their neighbors who have already achieved, each in its particular line, the most eminent success.

Fortunately there are many clubs in the immediate vicinity of the metropolis which are ready at all times to extend the hand of welcome to fellow seekers after the best



ARRIVAL OF THE MOTOR CARS AT THE MANHASSET BAY YACHT CLUB

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MAKING A LANDING

that can be got out of a life afloat and ashore, accompanied by all those social amenities and opportunities which enhance the summer season and enable it to be passed with the maximum of enjoyment and the minimum of discomfort.

There is, for instance, the Larchmont Yacht Club, many of whose members are already keen motorists, both on land and water, as was evidenced by its being selected as the custodian of the beautiful gold cup, "The Amateur Challenge Trophy," for motor boats. Then there is the Manhasset Bay Yacht Club, on Long Island, which has shown the utmost readiness in extending all its privileges to the motorist, either as guest on land or as competitor on sea. Again, with similar open-heartedness, the American Yacht Club, on the opposite of the Sound, has thrown open its doors. Indeed, the courtesy of all the clubs in the vicinity is assured. Each club has something distinctive to teach, and all are very pertinent models for the study of those whose object is to be sure that the "Country Club of the Automobile Club of America" shall have the best which experience can suggest and enthusiasm can accomplish.

It is not needful to draw comparisons or contrasts between clubs; all three of those mentioned conform to the ideals of their promoters, and each of them is equally fortunate in many indispensable things, i. e., in good approach roads, in distance, in safe harbors, and in neighborliness.

To the enthusiastic motorist the harbor of Manhasset on Memorial Day presented everything which could satisfy his desires. There was a land-locked harbor in which floated every kind of craft, from a tiny canoe up to the gaily-bedecked auxiliary yacht, capable of housing a host of friends. There was every variety of motor-launch, from those of the dimensions of a miniature house to the serviceable little runabout, fussing around from yacht to shore. There was a fleet of that most modern of crafts, the real motor-boat racer, piercing the waters like torpedoes, and cavorting around with all the impatient pride of reined-in thoroughbreds. There was W. K. Vanderbilt's *Hard Boiled Egg*, a name to puzzle a Philadelphia lawyer until it is humorously explained that it is so-called "because she is hard to beat," which injured its rudder rather than run into another boat, and was thereby put out of the contest; and there was the mahogany wonder, which did not enter, the *Standard*. There was C. H. Tangeman's *Fiat 2*, with her remarkable horizontal chimney, and her blue-jeans covering; there was the snake-like Panhard, fit to pierce a warship in appearance; and H. A. Lozier's *Shooting Star*, not inaptly named; and F. H. Waldorf's *Japansky*, which got there, like her forename, the Jap, is doing in the East. Then there were naphtha launches galore, both cabin and open, *Allure* and *Miss Swift*, *Ardis* and *Flash* and *Javelin* and *Queen Bess* and *Nada*, with a host of attendant non-combatants.

When they were all sent off on their courses, between two lines of enthusiastic backers, and still more so when the victors returned, the bay was a sight to do the heart good. A new factor had been added to yachting, and to motoring, too! Is it to be wondered that the occasion drew automobilists and yachtsmen from near and far? The members of the Automobile



BEAUTIFUL LARCHMONT IS WELL GUARDED

Club who made their first acquaintance of motor boats in contest at the Manhasset Bay Yacht Club on Memorial Day had a most opportune conjunction.

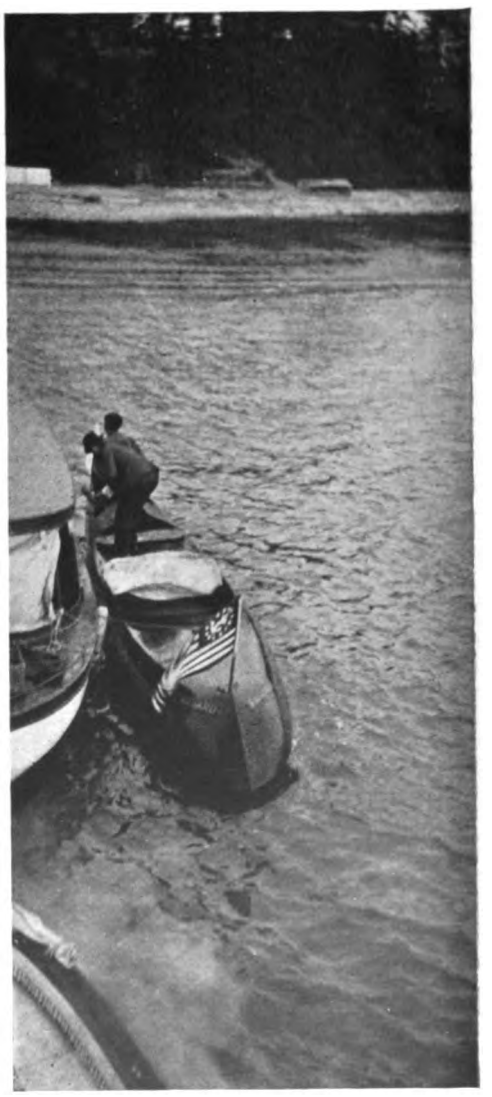
The route to Manhasset by road is via Flushing and Little Neck; and although the roads are likely to be, in parts, somewhat sandy, the grades are easy, and the tang of the sea is in the air for the greater part of the way.

The roads both to Larchmont and to the American Yacht Club at Milton Point, farther up the Sound, are more direct, and over the best roads out of New York; either up Fifth avenue and Seventh to Jerome avenue, and across Tremont, to the Old Boston Post road, or through Washington avenue to the Pelham road and through that park to New Rochelle park, and thence to Larchmont over the Old Boston Post road.

Nature has done marvels for the part of Westchester through which these roads go in blessing it with a soil sufficient to grow the finest timber within a thousand miles. Chestnuts under which Longfellow's smithy might nestle; oaks, the like of which are seen in few places outside Windsor Great park, and beeches whose ample trunks wax fat within their silver bark; while of cherry trees I do not know where to find the peers; and, more marvellous still, in building the village everybody has had the good sense to leave every tree possible standing, whereby every house is embowered in foliage, shrubs, and flowers.

But the crowning glory of Larchmont for the summer motorist, is, of course, its world-famed yacht club; and it well deserves its high reputation. Up to its very portals lap! lap! lap! the most pellucid of waters; on rocks of the backbone of the world, free from the least particle of covering, torteous, marble-grained, gneiss-folded. The woods of its shores contest with the sea down to the last foot, even the wild rose, and many another of Nature's choicest wild flowers, are sprayed with the plash of the sea ere they will give up the contest.

The harbor is encircled with the arms of the forest on either side, from out of whose cool depths many a happy home peeps, and over the whole scene hangs the bluest of skies, in which the white-caps of the heavens float lazily. Enlivened by a thousand white sails dancing in the offing it is indeed a scene to soothe the senses into Elysi-



PREPARING FOR THE FRAY

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um! If we turn indoors, there we shall find that art has accomplished what Nature has on the outside; everything is perfect for its exact purpose. All is large, cool, and shady, from the piazzas to the remotest reading room. Here, too, are gathered such mementoes, such pictures, in such soul-satisfying and body-refreshing nooks and cosy corners, as only generations of experience could have suggested and rendered possible.

All this is not for "mere man's" selfish enjoyment. Are not the "Ladies' Days" of Larchmont known wherever salt water flows and good heartedness reigns? And are not its Saturday night dances, *al fresco,* as well beloved, for they are all but on the green? The ballroom is open on two sides to the woods and the other is open to the sea. Nor is the muse of drama and music left one tittle behind, the ballroom being alternately given up to the one or the other. Is there any wonder that there are sounds of revelry by night in gatherings of beauty and of chivalry, followed by days of glorious refreshment motoring by sea and land?

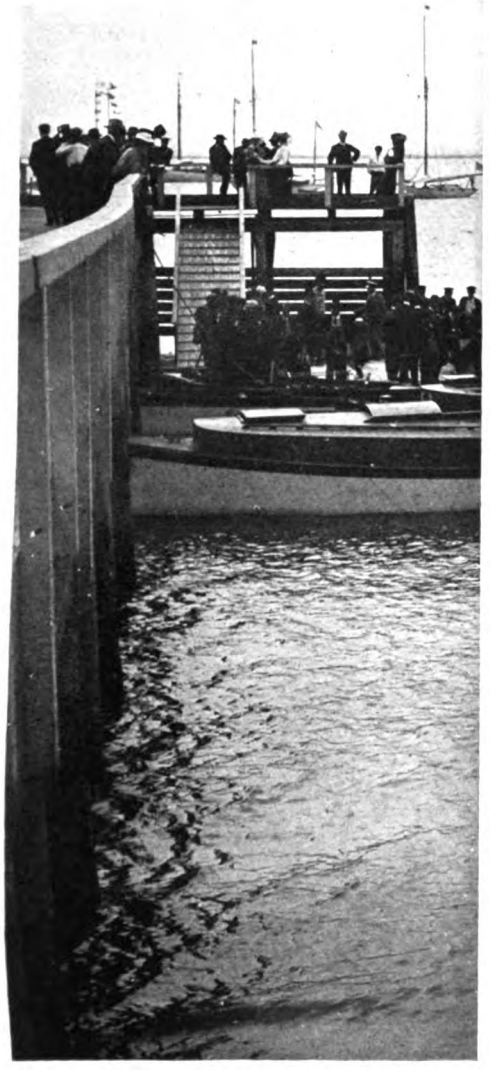
The Automobile Club can read in the book of success at Larchmont, and Manhasset, and Milton Point; and if it betters its instructors it will have achieved a motorists' summer paradise.

THE NEW FREEDOM OF THE WATERWAYS

By an Aquatic Enthusiast

Motor boating has not only come to be recognized as a distinct development in light craft engineering, but it is even now clearly seen to be a separate, wholesome branch of latter-day sport and pastime. The new pleasure possibilities which rise above the horizon must inevitably engage the fancy of anyone fond of looking ahead even in a conservatively optimistic way. Those who may have hailed automobiling as the last word in the great recreation movement of which it is so conspicuous a part must broaden their views enough to give motor boating a serious place beside it.

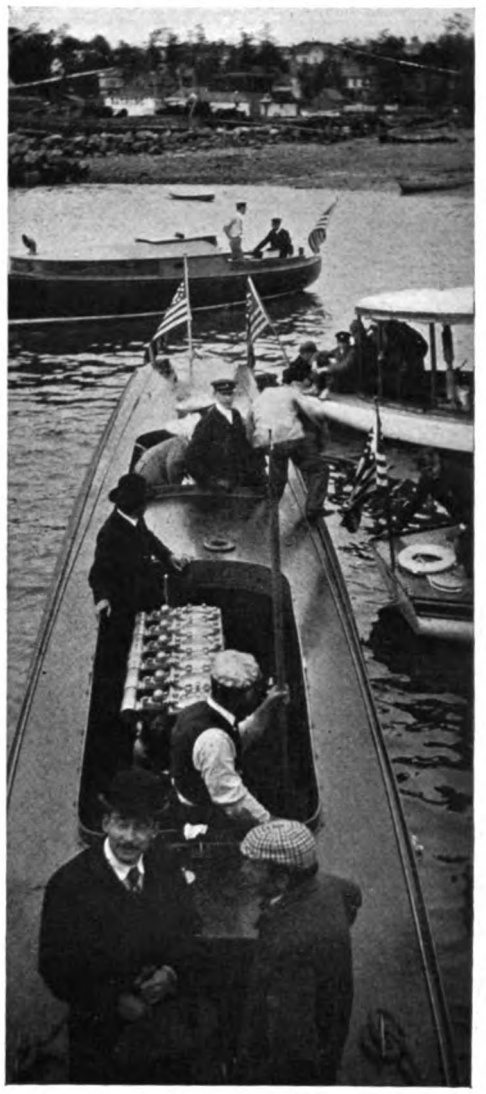
The marine motor promises nothing less than to do for the sportsman who loves the water what the road motor has done and is doing for the sportsman who loves the roadside and the landscape. Both are safe, economical means of privately-owned transportation, and so quick is the age in which we live to recognize true economy of time and means in new things, that either would work its way to large popular use on the score of utility alone. But this is only a part of the benefit of having and using a private conveyance on the water as on land.



AT THE LANDING

On a motor boat, whose owner finds pleasure in being his own captain and engineer, the freedom of pleasure seeking reaches its apotheosis. Privacy is gained such as is impossible with any road vehicle; indeed, there is scarcely anything to compare it with except a private railway car. The modern cruising craft is made to serve the purpose of living as well as providing the means of travel; and it may be anchored for days or weeks in coves and shallows almost forgotten of men. In actual experience, too, the ownership of a fine water craft gets more consideration from the natives of the country or section through which he passes than the owner of any style or type of road machine.

The highway is first and last a thoroughfare used by the many coming and going—mostly in a hurry; but the average waterway has breadth and expansion as well as length, and is traveled by comparatively few. And the distinctive mark of marine pleasure craft is conscious leisure—time for the civilities of life. Only in the vicinity of large towns and cities are rivers and harbors crowded, or when there is low water or a sudden dash of many to shelter. A more generous, more thorough going courtesy is likely to be exhibited afloat than on the land. Both the written and the unwritten laws of the waterways are fewer in number, simpler and more uniform than the corresponding laws of the highways and parkways could possibly be.



TALKING IT OVER.

No proof will be required for the statement that the largest possible variety of scene as well as of experience is his who uses his own stanch pleasure craft for extended cruises. There is a monotony of travel on both land and water, and perhaps the latter may be at times the most trying of the two; but the fascination of a safe harbor after a stormy voyage, the close contact with the craft of different nationalities, and the delight of being rocked to sleep while at anchor have no counterpart in travel on land.

Roadways are frequently impassable, waterways so only in rare instances, and the former lack the sense of largeness which the latter undoubtedly afford. Afloat one is a citizen of all waters, starting his craft with equal confidence on the Tappan Zee or Lake Pontchartrain, the English Channel or Chesapeake Bay, on the Mississippi or the Danube, on the Mediterranean Sea or Puget Sound. One skilled in watermanship is half-brother to the Venetian and the Malayan, and meets the captain of a battleship or the master of a merchantman on nearly equal terms. And when water sport comes to international competitions, there are spectacular features of speed performances and a comparative test of different national systems which arouses the highest interest. Let two motorists meet and their talk is an endlessly pleasant comparison of craft and voyages.

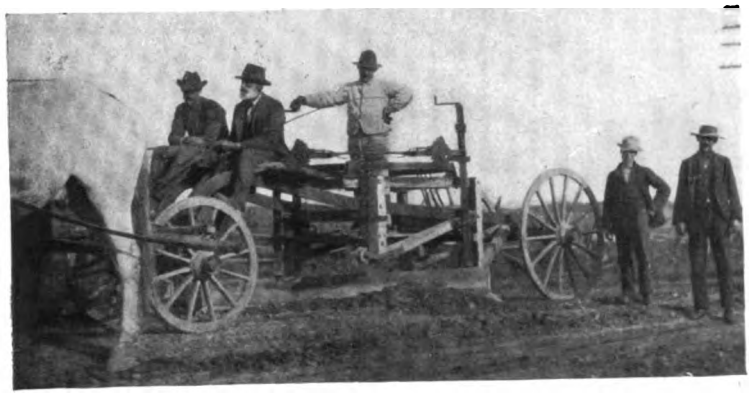


WHERE THE GASOLINE IS STORED.

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THE MECCA OF THE MOTORISTS

The expectations of the originators of the St. Louis tour are more than exceeded. Gratifying numbers of applications, both of attached and unattached motorists, demonstrate that during July and August, St. Louis will be the "Mecca of Motorists." This great pilgrimage of many motorists on many roads, all with faces turned toward a common destination, will be an event in the history of motoring long to be remembered.



A ROAD-MAKING MACHINE IN CENTRAL NEW YORK

REVISED ITINERARY OF THE RUN TO ST. LOUIS

MAIN LINE—NEW YORK TO ST. LOUIS.

Date.	Night Stop.	Miles.	Road Conditions.
Monday, July 25	Poughkeepsie, N. Y.	76	Rolling, macadam, good.
Tuesday, July 26	Albany	74	Rolling and hilly, dirt and gravel, fair.
Wednesday, July 27	Utica	100	Long grades, dirt and clay, poor.
Thursday, July 28	Syracuse	49	Rolling, gravel and dirt, poor.
Friday, July 29	Rochester	82	Hilly, dirt and gravel, poor.
Saturday, July 30	Buffalo	73	Mostly level, dirt and macadam, good.
Monday, August 1	Erie, Pa.	94	Rolling, gravel and clay, good.
Tuesday, August 2	Cleveland, Ohio	110	Rolling, dirt and gravel, fair.
Wednesday, August 3.	Toledo	113	Rolling, dirt and stone, fair.
Thursday, August 4.	Waterloo, Ind.	93	Rolling, dirt and stone, fair.
Friday, August 5	South Bend	16	Rolling, gravel and dirt, fair.
Saturday, August 6	Chicago, Ill.	102	Rolling, gravel and dirt, fair.
Monday, August 8	Pontiac	91	Rolling, macadam and dirt, fair.
Tuesday, August 9	Springfield	94	Rolling, black soil, poor.
Wednesday, Aug. 10.	St. Louis, Mo.	91	Rolling, gravel and dirt, poor.

CENTRAL NEW YORK DIVISION—NEW YORK TO BUFFALO.

Tuesday, July 26	Kingston, N. Y.	94	Rolling, macadam, good.
Wednesday, July 27.	Delhi	71	Very hilly, all kinds, poor.
Thursday, July 28	Binghamton	71	Hilly, dirt and macadam, fair.
Friday, July 29	Bath	104	Rolling, dirt and gravel, good.
Saturday, July 30	Buffalo	120	Rolling, dirt and gravel, good.

At Buffalo join main line route.

NEW ENGLAND DIVISION—BOSTON TO ALBANY.

Monday, July 25	Springfield, Mass.	97	Rolling, gravel and macadam, good.
Tuesday, July 26	Albany, N. Y.	92	Hilly, dirt and gravel, fair.

At Albany join the main line route.

PHILADELPHIA-PITTSBURG DIVISION TO CLEVELAND.

Wednesday, July 27.	Harrisburg, Pa.	108	Long grades, dirt and gravel, fair.
Thursday, July 28	Gettysburg	40	Hilly, dirt and stone, fair.
Friday, July 29	Bedford	78	Rolling, turnpike, good.
Saturday, July 30	Pittsburg	98	Heavy grades, stone, fair.
Monday, August 1	Youngstown, O.	68	Hilly, dirt and stone, fair.
Tuesday, August 2	Cleveland	68	Hilly, dirt and stone, poor.

Those taking the first part of this route may cross over to the national highway from Gettysburg to Hagerstown.

NATIONAL HIGHWAY, BALTIMORE TO COLUMBUS.

Friday, July 29	Hagerstown	47	Rolling, gravel and macadam, fair.
Saturday, July 30	Cumberland	67	Grades, turnpike, good.
Monday, August 1	Uniontown	64	Hilly, turnpike, good.
Tuesday, August 2	Wheeling	66	Hilly, turnpike, good.
Wednesday, Aug. 3.	Zanesville	80	Hilly, turnpike, fair.
Thursday, August 4.	Columbus	80	Rolling, gravel, good.

CENTRAL DIVISION—COLUMBUS TO ST. LOUIS.

Friday, August 5	Richmond, Ind.	100	Rolling, gravel, good.
Saturday, August 6.	Indianapolis	70	Rolling, gravel, good.
Monday, August 8	Terre Haute	77	Rolling, gravel, good.
Tuesday, August 9	Vandalia, Ill.	107	Rolling, clay, fair.
Wednesday, Aug. 10.	St. Louis, Mo.	79	Rolling, clay, poor.

The various local sub-committees appointed to plan details and to gather information have made much progress, and the routes as now determined will probably remain unchanged.

On account of the bad roads, it will be necessary to make detours from the main highway between Cleveland and Chicago. For instance, a detour will be made at Effingham, Ill., where the route will follow a road about two miles north of the main highway to a point a few miles east of Vandalia. Another detour will be from Indianapolis, Ind., passing south of Greencastle to Rockville, and thence to Terra Haute.

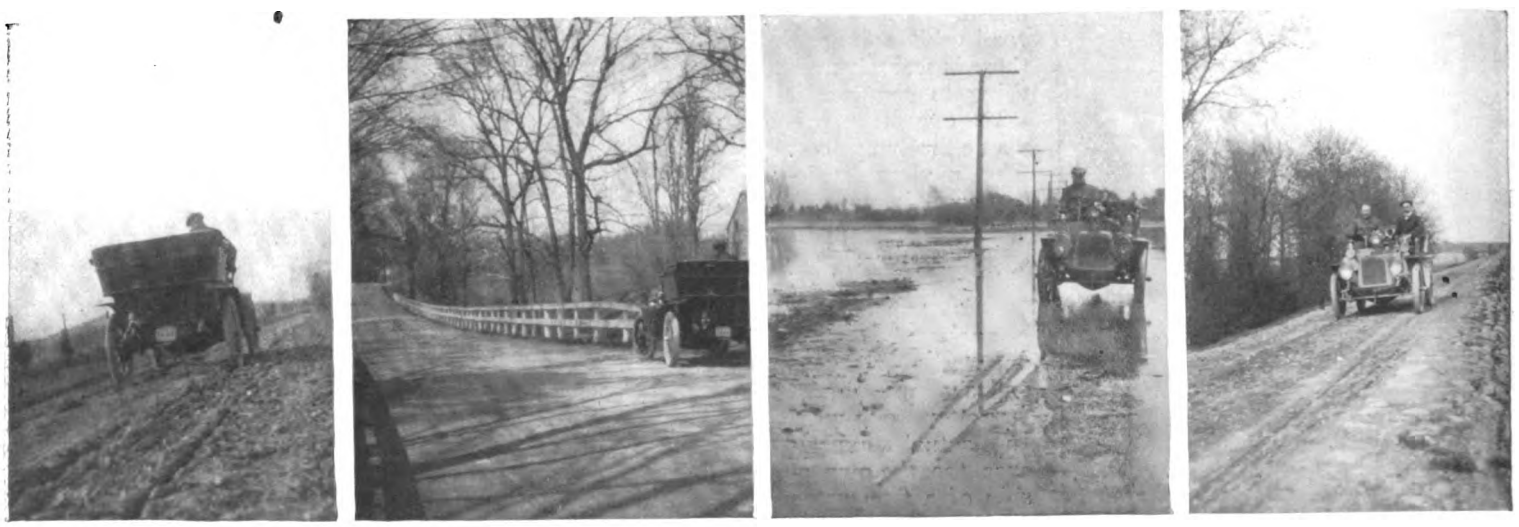
There will be several other optional routes. Thus, there is the route from Cleveland to Clyde, O., by way of Sandusky, along the Lake Erie shore. Under certain weather conditions, this is preferable to going through Elyria, Oberlin, and Norwalk. Another optional route extends from Chicago to Joilet keeping to the west bank of the Illinois River.

For motorists who contemplate taking the Central New York trip, by way of the Hudson to Albany, and thence to Buffalo through the Mohawk Valley, Syracuse, Rochester, etc., much effort has been directed toward finding a satisfactory detour to avoid the Montezuma marshes near Syracuse. The committee having the matter in charge, while it has not reported in detail, says that a desirable route has been found.

The enthusiasm that the project of this great marshaling of the motorists at St. Louis originally evoked has been generally supposed to be confined to a limited section of the East, but it is now found to have spread far beyond the circumference of what was at first considered to be the maximum area of possible interest. The committee on this run is receiving reports from Texas, Oklahoma, Kansas, Nebraska, and practically every State west of the Mississippi. The Southern States have long since decided to send delegations, and the far-away Northwest will contribute a contingent. It is even intimated that several Pacific Coast motorists may appear at the rendezvous.



THE OPPRESSOR AND THE OPPRESSED



SOME OF THE SPRING ROADS ENCOUNTERED BY F. E. MOSKOVICS AND HIS CLEMENT IN HIS RUN ACROSS NEW YORK STATE EN ROUTE TO ST. LOUIS

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In the recent tour of the Automobile Club of America from New York to Gettysburg and back it seems that I was the only tourist, wherefore I suppose it devolves upon me to chronicle the events of the journey, if they are to be chronicled at all.

On the first day the traveling was good, but the travelers were few. Horse racing proving a greater drawing card than the Gettysburg run, motordom unanimously forswore its more proper enthusiasm and hied itself to see "The Picket" beat "Irish Lad" in the famous Brooklyn Handicap. One of the "old-timers" who was present told me at the club, a few days after, that while I was dutifully making the run to Gettysburg, in accordance with original plans and schedules, a battalion of the delinquent motor cars, one hundred strong, was lined up against the railing at the Gravesend track, seeing the horses "go." Thus are the prophets of the much-heralded "passing of the horse" occasionally confounded.

The run to Philadelphia was made by way of the Battery, to and across Staten Island, to Perth Amboy, N. J., to Metuchen, New Brunswick, Deans, Hightstown, and Windsor, through the outskirts of Trenton and so on through New Jersey by way of Bordentown, Columbus, Burlington, Bridgeborough and Camden. The most traveled route from Trenton to Philadelphia was once along the west bank of the Delaware River and through Pennsylvania, but this course was avoided on the present trip because the other road was in much better condition. Indeed, all the way from Perth Amboy to the Broad Street Station there was never smoother or cleaner running.

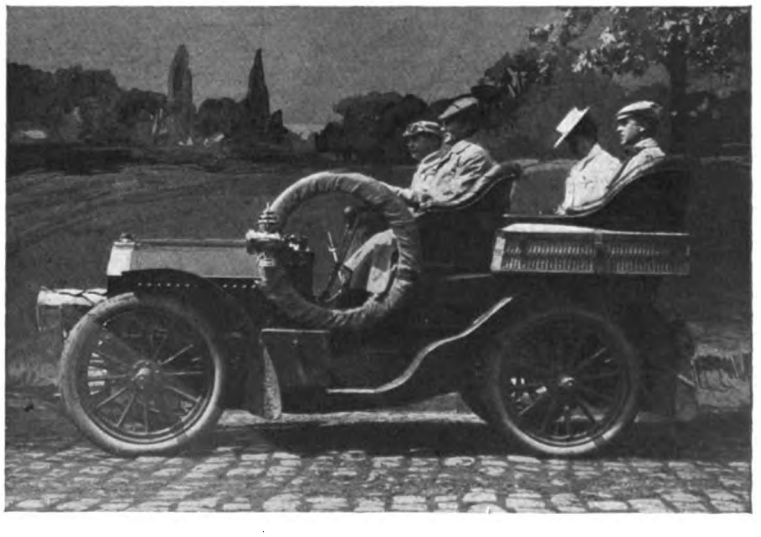
At Philadelphia our troubles began. Besides my own party, which included my wife, D. H. Bates, Jr., myself and the chauffeur, in a 16-22 horsepower, four-cylinder Locomobile, only five of the other tourists reached the big Quaker town as scheduled. We were the first to arrive, reaching the "Public Buildings" after an easy seven and one--half hour run, two and one-half hours of which were devoted to lunch at New Brunswick. We arrived in Philadelphia early enough to take in a theatre before any of the other parties came in. Then, with Secretary Butler, of the Automobile Club, and Emerson Brooks, of the Committee on Runs and Tours, together with the few others on deck, we held a council of war in the Flanders Hotel roof garden. Then, in view of the little interest apparently taken in the long run, we decided to go over to Atlantic City and so back to New York. It is said that other members of the original New York party, variously estimated at from fifteen to twenty-five, came into town at different times during the night, but no such numbers were visible when we pulled out in the morning. Mr. Brooks with a Cadillac, Mr. Belding with a Peerless, and Mr. Davis with a Mors, in which were Leo Bamberger and Felix Isman, were all that I saw. The run through Camden, Berlin, and Hammonton was made without dereliction of duty, and lunch was had at Egg Harbor late in the afternoon. It was about this time, as afterwards developed, that a slander was going the rounds in New York to the effect that the Davis party had wagered their Mors car on "Irish Lad" in the Brooklyn Handicap and lost, and that unless they could borrow a new car they would have to give up their trip. Fortunately for the good repute of these gentlemen, however, I am able to refute this slander, for between Egg Harbor and Atlantic City we came upon them disconsolately accommodated in a ditch. With what fortitude and patience they were waiting to be rescued I, as a truthful but living historian, dare not record. The accident had occurred in an attempt to pass a fractious horse, which, in a praiseworthy attempt to size up a rival, had leaped directly in front of the big foreign car. It then became a case of killing the driver of the horse or of plunging into the ditch. The latter alternative was adopted as unhesitatingly as unwillingly. Fortunately no one was injured, but the big road locomotive lay careened in a quagmire for three days, a mute witness to the costly sacrifice by which human and equine life had been preserved in a time of peace. It was five miles to the nearest trolley line, and as my car was already loaded to its capacity, clearly the part of the Good Samaritan was to leave Mrs. Morrell, Mr. Bates, and the chauffeur to meditate by the roadside while the castaways were hastily conveyed to a point where five cents a head would take them safely to the Board Walk.

That evening we repeated the dissipation of the previous day, and forgot our cares at a theatre, in Atlantic City this time.

It was 12 o'clock Saturday before we were on our way back to New York by way of Tuckerton, Barnegat, Waretown, Toms River, Lakewood, etc. The roads were alternately very good and very bad and we saw at least five other cars along the route stalled in deep sand holes. A man with a team of horses had discovered a lucrative occupation in rescuing them from their various predicaments. He cast a longing eye upon our efforts to pass over the numerous bad stretches of deep sand, and wiped away a tear as he estimated the loss in possible fees. But, profiting by the example of the others and keeping constantly on the low gear, the good Locomobile kept on with the aid of no horsepower but its own. After lunch at Lakewood, the run to Asbury Park, by way of Point Pleasant, was quickly accomplished. By the time Asbury Park was reached the last traces of the rest of the crowd were finally lost.

After a restful night at Asbury Park, Sunday morning dawned clear and bright. Then it was that I determined to go on to Gettysburg whether or not I went alone. This involved a repetition of almost half of the trip, for we were now near to New York; but a cut across country, through Freehold to Hightstown, and thence to Philadelphia, was more a matter of steady running than of great persistence or calculation. Philadelphia was reached early in the evening, and, as we wished to make Gettysburg by the next day—Decoration Day—we decided not to stop in Philadelphia that night, but to go out to Chestnut Hill so as to make an early start in the morning. The twelve miles to Chestnut Hill proved not to be so easy as they promised. We were utterly ignorant of the road, and, of course, obliged to make many inquiries. The directions given us were in every case ample and explicit, but as no two policemen or pedestrians recited them according to the same formula, we were soon as effectually lost in the mazes of Fairmount Park as we might have been with Livingston or Stanley. It was out in the middle of Franklin Field—which we took to be the Wissahickon Speedway—that we gave it up as a useless undertaking and determined to run the desperate risk of summoning another park policeman. He came with his brass buttons and proud magisterial mien, pondered over our predicament, and led us gently on our way. Fortunately, we had been able to show the special license the park commissioners had granted us.

At 9 o'clock Decoration Day morning we set out for Harrisburg. To Reading the roads were good. Then came the toll roads. In course of the next sixty miles there are eighteen



SURVIVOR MORRELL AND PARTY IN HIS LOCOMOBILE

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toll gates, and, although the roads are fine and well maintained, the toll-keepers, unlike those in Gilpin's day, seem to be deaf and dumb, and it is not altogether certain but that they are bereft of other senses also. Wise in the ways of these gentry, the A. C. A. planned to save trouble on the run by arranging with the management of the toll roads for a lump payment for whatever might be the total number of cars that passed through, and it was agreed that each car in the run should carry a small streamer of red and white ribbon on one of its lamps, to identify it. Some of the toll-keepers seemed to have been posted and to have remembered, for as we passed by they would wave their hands in good-natured token of their understanding that all was well. Others, however, seemed not to be advised, and as we shot by their stands at a good speed, like Gilpin's steed of old, the idea that we were trying to escape paying toll was plainly written across their faces. Their gesticulations and objections were in vain. On we went. As I write, my conscience twinges a little. It is a shame to have treated them so, but as scarcely a gate was closed, and smooth the road, and our axles well greased, was it not a violent temptation? Usually a motorist signifies his desire to pay toll by a loud tootling of the horn. Violent demonstration of this sort ultimately results in the leisurely appearance of the gatekeeper, who, innocent of any idea that a traveler's object might be to proceed on his way, inquires what is wanted, and then returns to his shanty for the necessary ticket-of-leave. The ticket produced, it again becomes necessary to go to the shanty for a punch with which to stamp it. This little journey is followed by another after change; any attempt to produce small coin from the gatekeeper's pockets always has unsatisfactory results. The toll charges average very close to five cents a mile for an automobile.

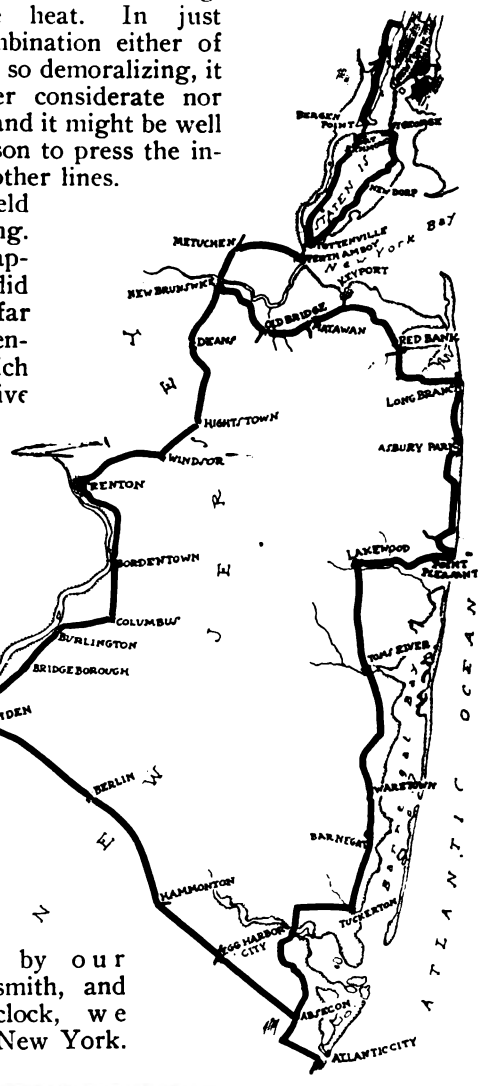


M. M. BELDING, JR., AND WALTER MESEROLE IN A PEERLESS.

Harrisburg was reached at 5 o'clock in the evening. Here we rested an hour while gasoline was obtained for the car, and at 6 o'clock we started over the mountain for Gettysburg. It had rained for an hour or so, and there were so many small washouts in the undrained road that speed was impossible. At York Springs, a violent thunderstorm came up and darkness descended so abruptly upon us that we stopped to light our lamps. It was still fifteen miles to Gettysburg, and as we did not know the road, which beyond the range of our acetylene lamps seemed to rise like a black wall, our onward course was beset with difficulties. Before long we broke a spring through a too sharp descent into a "thank-ye-ma'am," but we fixed this up sufficiently, with plenty of cord and a rubber bumper, to continue on to our destination, and Gettysburg was reached at 10 o'clock Tuesday morning. While the village blacksmith made a new spring, our party traveled over the battlefield in a horse-drawn carriage.

Gettysburg was crowded with soldiers, veterans, and civilians, many of whom seemed to have been much overcome by the exercises of the previous day, either through a surfeit of speech-making or by the heat. In just what measure or combination either of these factors had been so demoralizing, it were, perhaps, neither considerate nor charitable to inquire; and it might be well for an inquisitive person to press the investigation along no other lines.

The great battlefield was most interesting. Every point is easily approached by the splendid Government roads, far better than those in Central Park, and of which there are twenty-five miles. After lunch, we went over the battlefield again in our car, the spring of which had been repaired by our friend, the blacksmith, and then, at 4:30 o'clock, we turned again toward New York.





CANBURY PIKE, ONE OF JERSEY'S FINEST STATE ROADS.

Once more the rain was falling persistently, and it soon settled into a steady downpour, making the roads worse every minute. We made Harrisburg in two hours and a half, however, and there put up for the night securing a good night's rest that we all needed.

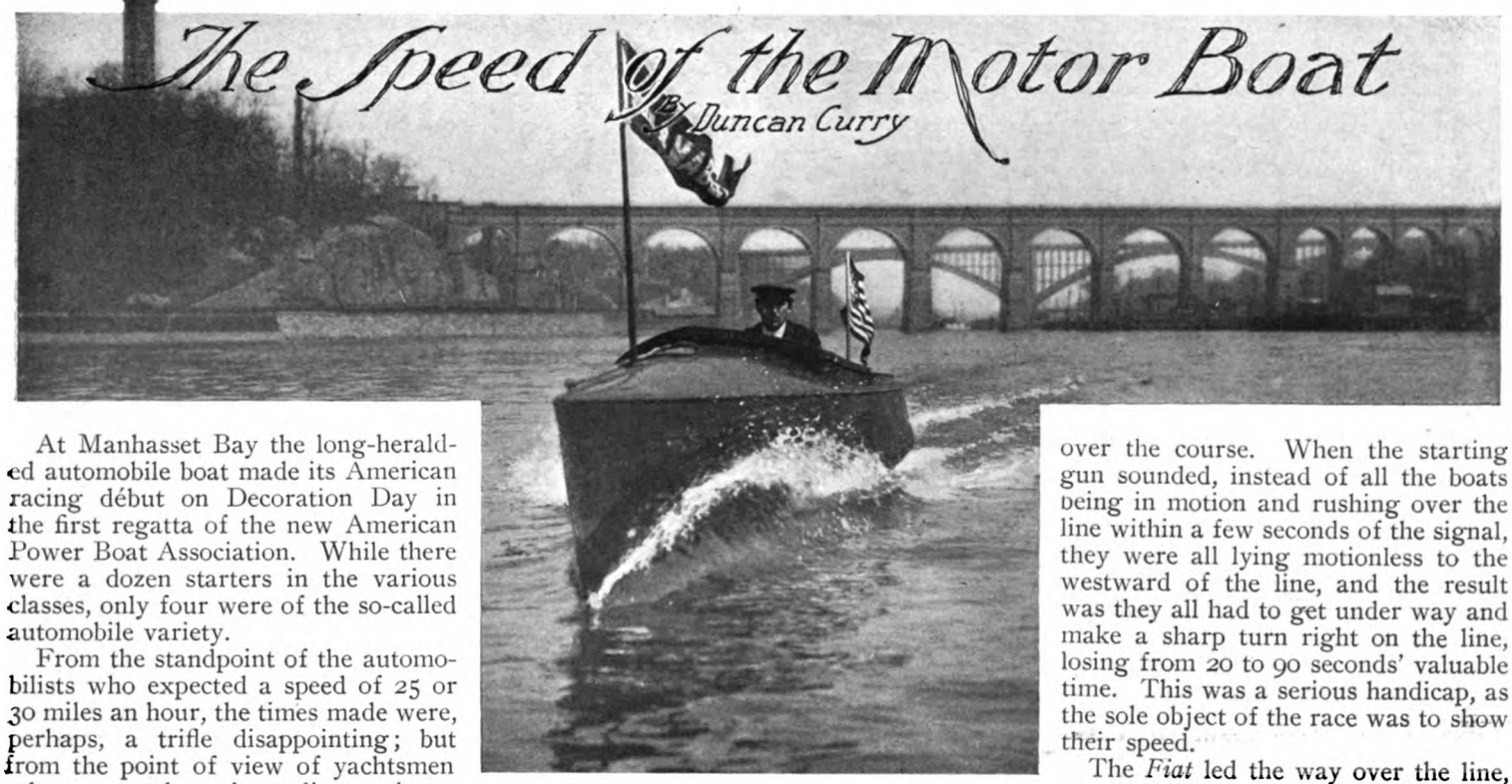
Late Wednesday forenoon, we left Harrisburg for Philadelphia. The roads, which are mostly of clay, were by this time ex-

(CONTINUED ON PAGE 44.)

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The Speed of the Motor Boat

By Duncan Curry



At Manhasset Bay the long-heralded automobile boat made its American racing début on Decoration Day in the first regatta of the new American Power Boat Association. While there were a dozen starters in the various classes, only four were of the so-called automobile variety.

From the standpoint of the automobilists who expected a speed of 25 or 30 miles an hour, the times made were, perhaps, a trifle disappointing; but from the point of view of yachtsmen who are used to the ordinary six or eight miles an hour power boat, the speed attained by these tiny space destroyers was simply a revelation.

While the present type of boat is not particularly desirable from a utilitarian standpoint, the boats have unquestioned merit and much to commend them. A cheap and powerful little motor beats within their freak and fragile hulls, which later on, when the present speed craze has run its course, can be fitted to a sane and sensible type of boat and fill a long felt want on our rivers, bays, and harbors.

One reason why the entry list was so limited in the opening races was because it was so early in the season. Also many of the new boats had not been finished, and the owners of some of them that were ready were so disappointed in their speed that they declined to start their boats, feeling sure of certain defeat.

Under the conditions of the race all of the boats except two sailed over a 19½ knot course from Port Washington to Gangway Buoy, Scotch Caps, Matinicock, Old Hen, Gangway Buoy, and home. The starters included F. H. Waldorf's *Japansky,* a 39-foot Seabury boat of 40-horsepower, which had no competitor; C. H. Tangeman's *Fiat No. 2,* a 23-foot boat with 35-horsepower; H. A. Lozier's *Shooting Star,* a 24-30-horsepower boat fitted with a Lozier motor; and A. Massanet's Panhard boat, fitted with an 18-horsepower Panhard motor; the three last named racing together, as the Panhard, having no competitor, moved up into this class.

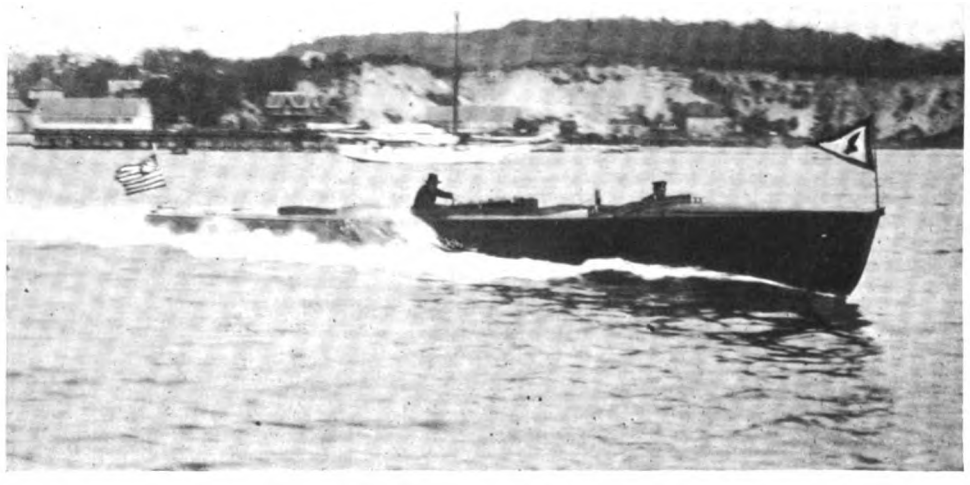
W. K. Vanderbilt, Jr., was on hand with a Jacobs boat fitted with a 60-horsepower Mors motor which he called the *Hard Boiled Egg.* Unfortunately, just before the start, in trying to avoid a collision with the Panhard boat, he jammed his helm over so quickly that he bent her rudder nearly in half and had to withdraw. The big 55-foot *Standard,* with its huge 110-horsepower motor, was also very much in evidence during the preliminary maneuvers, but did not cross the starting line.

The preparatory signal sounded at 2:30, and ten minutes later the boats were sent away to a very straggling start. Their helmsmen, not being any too familiar with the water, had neither watch nor compass, and, so far as could be found out, not one of them had taken the trouble to go over the course. When the starting gun sounded, instead of all the boats being in motion and rushing over the line within a few seconds of the signal, they were all lying motionless to the westward of the line, and the result was they all had to get under way and make a sharp turn right on the line, losing from 20 to 90 seconds' valuable time. This was a serious handicap, as the sole object of the race was to show their speed.

The *Fiat* led the way over the line, closely followed by the *Shooting Star,* Panhard, and *Japansky* in the order named. By the time the boats had reached the open waters of the Sound, the *Shooting Star* had picked up the *Fiat* and took the lead. But her triumph was only momentary, as soon afterward she was disabled through the breaking of her propeller strut and had to withdraw. The *Fiat* held the lead across the Sound, but off Larchmont the *Japansky,* which had been steadily gaining, assumed command and led across the finish line, covering the course in 1 h. 26 min. 19 sec., or at the rate of 20.22 statute miles per hour, beating the *Fiat* by 6 min. 54 sec. and the Panhard boat by 14 min. 33 sec. The *Fiat* averaged 18.34 miles and the Panhard about 16 miles per hour. The boats would have made even faster time had their skippers had any knowledge of the course, for when they got out into the open waters of the Sound they went way to the northward of their true course and almost ran into Larchmont before they discovered their error. They then had to make a detour to the eastward before they could fetch Scotch Caps, which is off Mamaroneck, and lost much valuable time.

In the other classes, C. A. Godshalk's tiny 17-footer *Nada,* fitted with a 3½-horsepower Giant engine, made by far the best time over the short course, covering the 9½ knots in 1 h. 2 min. 35 sec.

The motor boats had another chance to demonstrate their speed, June 11, when the Columbia Yacht Club held a special regatta for power boats over its course on the Hudson River off Eighty-sixth Street and the Riverside Drive. There was a far larger entry list than at the opening races at Manhasset Bay, and, as the entire course was in full view of the spectators, the affair attracted several thousand people, who thronged the Drive, crowded the clubhouse balconies, and filled the decks of the assembled fleet of yachts to overflowing. While several new boats were on hand to demonstrate their speed they appeared to be a little short of work, and will need considerable tuning up before they will be able to show their best paces.



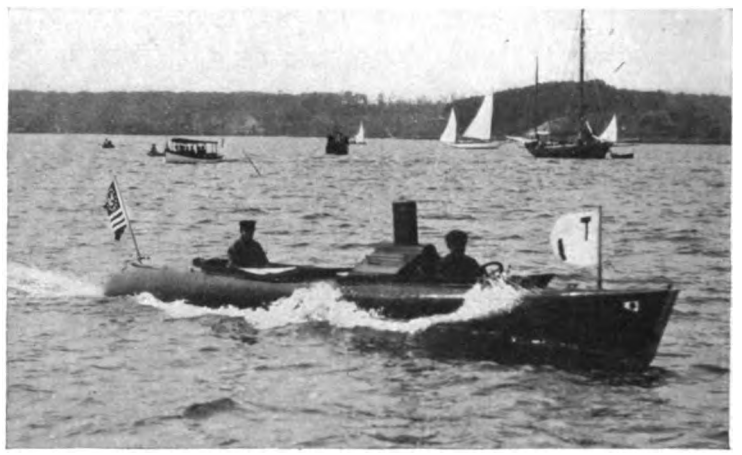
THE 55-FOOT STANDARD OF 110-HORSEPOWER.

Another point that becomes more apparent as the season progresses, is the absolute lack of knowledge of the water displayed by the alleged skippers or helmsmen of these high-powered craft. At Manhasset Bay they negotiated the

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MISS SWIFT, A WINNER AT MANHASSET



THE PANHARD IDEA ON THE WATER

course without watch or compass, and while they managed to find the marks, they lost so much time in doing so, that it cost them valuable time.

At the Columbia regatta the chief interest of the day centered in a comparison of what the new boats would do against the *Standard,* one of the best and fastest boats of last year's vintage. Some of the automobile people apparently think comparisons are odious, for although their instructions called for them to go over a course with the outer mark off Fort Lee, opposite One Hundred and Fifty-fifth Street, all except the *Standard* and *Japansky* turned the outer mark for the smaller classes off One Hundred and Twenty-ninth Street instead. The result was, everyone who was watching the races gained the impression that *Fiat, Shooting Star,* and *Hard Boiled Egg* were giving the *Standard* a terrible licking, when the reverse was the case, as they only covered 24 miles instead of the 32 miles made by the *Standard.* All of these boats should have been disqualified under the rules, but as they all made the same error the committee decided to let the result stand.



THE FIAT BEARING THE NUMBER 2

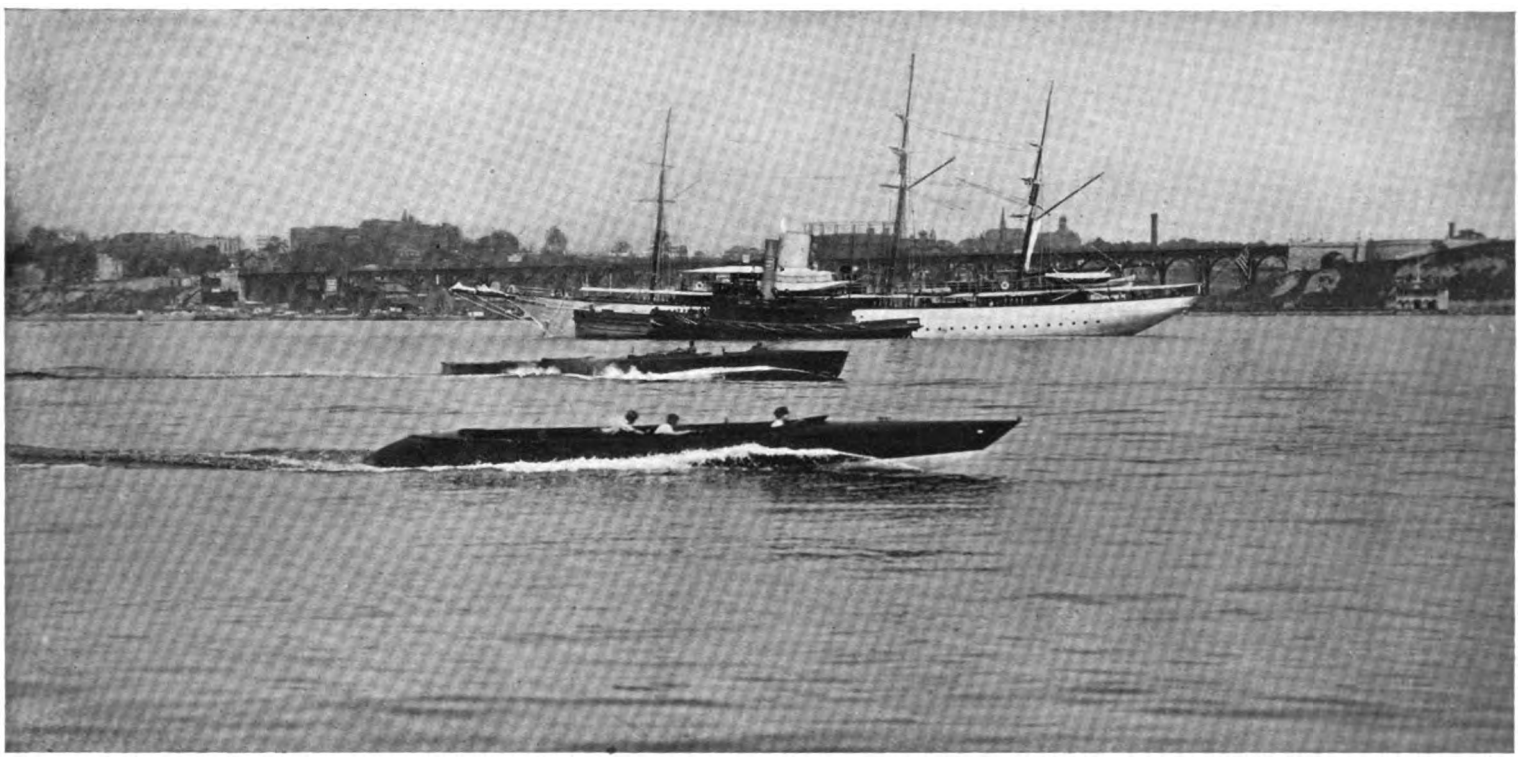
Before a serious accident results through the ignorance of the men running these boats, the American Power Boat Association should insist that competent men be put at the helms of these tiny flyers, as men who insist upon going out on the Sound without a compass and declare that it is impossible to find a mark, even when it is indicated by a numbered street, should not have other people's lives in their charge, even if they are willing to risk their own necks. Certainly no one in his sober senses would think of placing a man without knowledge of engines and motors in charge of the mechanical end of the boat, and there is no reason why a man who can turn the tiller from right to left but who does not know the rules of the road and the difference between port and starboard should think he can navigate one of these boats, and the sooner some of the manufacturers realize this before the game gets a black eye the better it will be for all concerned. So far as the racing was concerned there were seven starters, divided into two classes, and they were supposed to race four times around an eight-mile triangle or 32 miles in all. The starting line was off the clubhouse at Eighty-sixth Street, and the preparatory signal sounded at 2:30 o'clock. After the cabin boats and smaller classes had got away the *Standard,* the 110-horsepower boat which created such a sensation last year; the *Japansky,* a 40-horsepower Seabury boat which won at Manhasset Bay; the *Alert,* a new six-cylinder Seabury boat of 45-horsepower, owned by G. W. C. Drexel, of Philadelphia, were



Photo by F. A. Walter

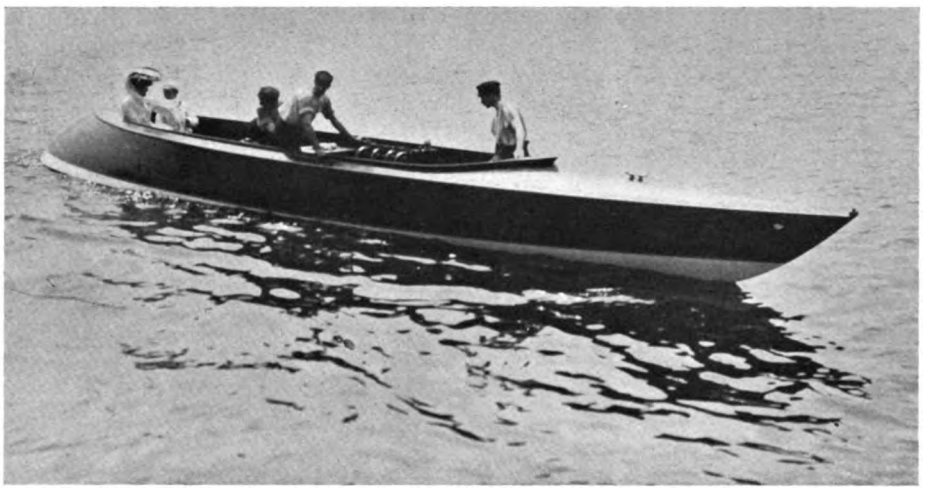
THE JAPANSKY THE CRAFT WHICH SURPRISED IN THE OPENING EVENTS

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THE HARD BOILED EGG AND THE STANDARD OPPOSITE THE MANHATTAN VIADUCT

sent away at 2:50 o'clock. Five minutes later, C. H. Tangeman's *Fiat No.* 1, the boat exhibited at the Sportsmen's Show and fitted with a tiny smokestack for her exhaust a lá the Panhard; W. K. Vanderbilt, Jr.'s, *Hard Boiled Egg,* fitted with a 40-horsepower Mors engine, with her owner at the helm; Frank Seaman's *Water Lily,* another Seabury boat, and H. A. Lozier, Jr.'s, *Shooting Star,* got away to a fine start.

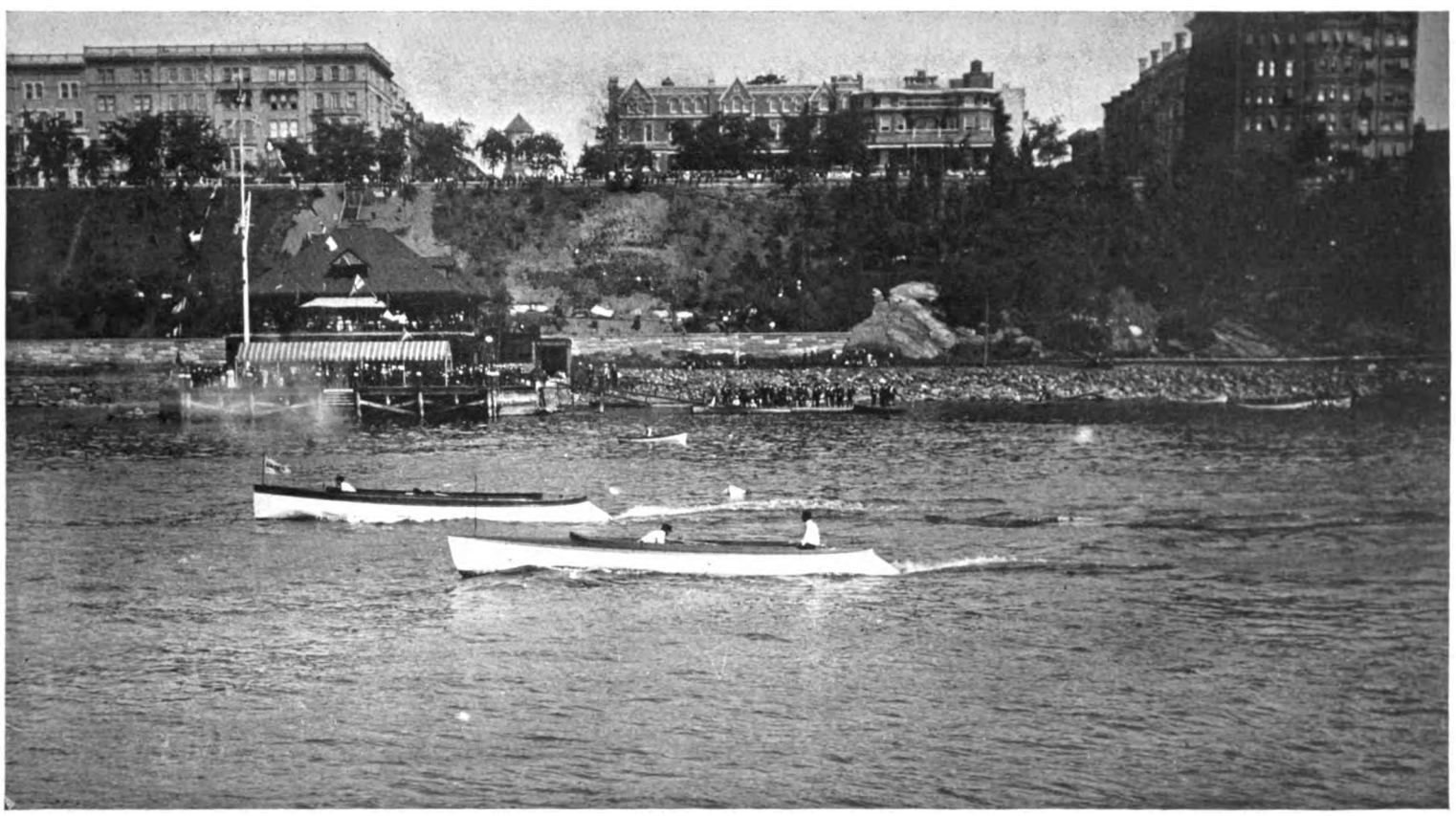


MR. VANDERBILT GIVING A RIDE TO MRS. VANDERBILT

The *Fiat* beat the *Shooting Star* by 54 seconds and the *Hard Boiled Egg* by 6 minutes 14 seconds. On corrected time the *Fiat* beat the *Shooting Star* by 7 minutes 21 seconds and the *Hard Boiled Egg* by 13 minutes 4 seconds.

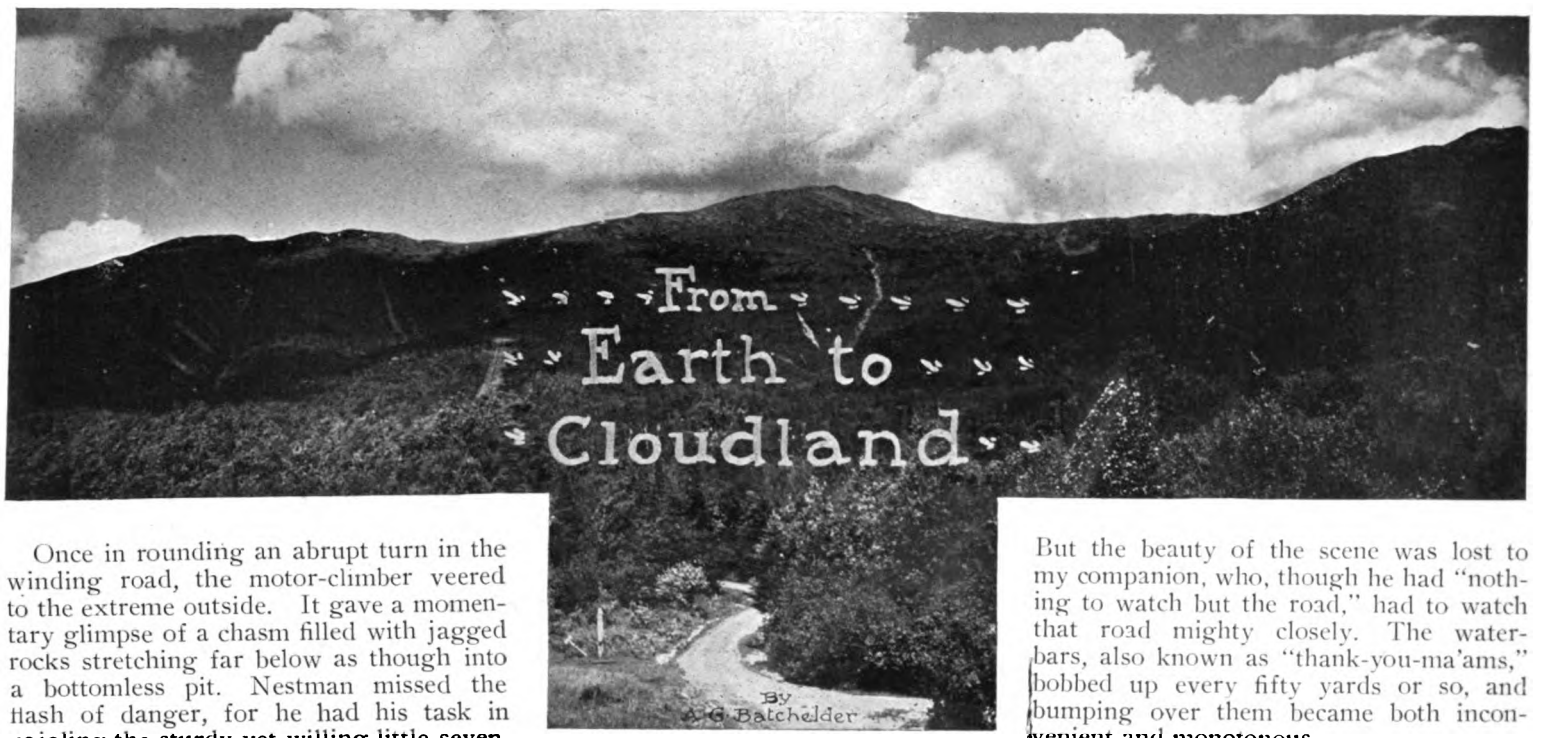
In the other class the *Standard* beat the *Japansky* by 40 minutes actual and over 18 minutes corrected time.

The *San Toy II* and the *Ardis* had a good contest from the start to the finish.



THE SAN TOY II AND THE ARDIS HAD A CLOSE RACE FROM START TO FINISH

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Once in rounding an abrupt turn in the winding road, the motor-climber veered to the extreme outside. It gave a momentary glimpse of a chasm filled with jagged rocks stretching far below as though into a bottomless pit. Nestman missed the flash of danger, for he had his task in cajoling the sturdy yet willing little seven-horse-power engine that was carrying us up the rugged sides of Mount Washington faster than it had ever been traveled before. We were record-breaking, and succeeding, too.

Far down the gray-crested mass of earth and rock waited our companions, lost to sight and beyond call. Below it had been a June Sunday blessed with ideal weather, but as we fought our way toward cloudland the warmth of the sun was neutralized by Old Boreas, who contributed a chilling wind that cut to the bone and retarded our progress in no small degree.

At exactly 1:30 o'clock our start had been clocked from the Toll-Gate, not far from the site of the Old Glen House on the Pinkham Notch road, and among those who wished success to us was L. J. Phelps, the man who held the existing record of 1 h. 48 m.

Across the clearing the determined little motor car jumped, and, turning gradually to the left, the dense forest presented an alluring invitation which was quickly accepted. Into its cool shade we plunged, ever fighting our way upward over a road that had within a day or so received the attention of some well-meaning but apparently mistaken highway repairers. This eastern shoulder of the mountain is luxuriantly favored with rich foliage, and the delightful canopy of green that enveloped the road was picturesque in the extreme.



MR. PHELPS ABOVE THE HALF-WAY HOUSE

But the beauty of the scene was lost to my companion, who, though he had "nothing to watch but the road," had to watch that road mighty closely. The water-bars, also known as "thank-you-ma'ams," bobbed up every fifty yards or so, and bumping over them became both inconvenient and monotonous.

A startled deer peeped out of the fringe of shrubbery at a sudden turn alongside the road, attracted undoubtedly by the musical "teuf! teuf! teuf!" discovered a strange monster in the forbidden precincts, and then scampered away with all possible speed. Squirrels chased one another across the road, birds sung from the tree-tops, and the vehicle narrowly missed toads that strewed the road.

As we climbed it became cooler, and the forest reduced itself to scant and scraggly material. The trees were emaciated, and the bushes were none too healthy. Dead trees that bore the look of bleached bones replaced the green-topped ones, and a general appearance of desolation obtruded itself as we neared the Half-Way House.

Here we arrived at 1:51 o'clock, or just 21 minutes for a distance that measured about four miles, or just half of the journey. Nestman thought the horseless steed required water, and we wasted 43 seconds of valuable time in learning our mistake, though the radiator received a perhaps needed bath.

With cheers from the keeper of the Half-Way shack and the swarthy-hued roadmakers, who were enjoying their day of rest with the least possible physical effort and undoubtedly wondering what form of dementia caused two men to go pell-mell up the sides of a mountain on such a placid afternoon, we resumed the climb.



AT THE TOLL-GATE JUST PREVIOUS TO THE START OF NESTMAN'S RECORD DRIVE TO THE TOP OF MOUNT WASHINGTON

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Not far above the half-way point the road doubles on itself at the Cape of Good Hope, and here bursts into view an overawing prospect of the Great Gulf, with the peaks of Jefferson, Adams, and Madison looming grandly on the other side of the threatening chasm, which opens up directly under the road.

It was here that the charioteer, involved with his climber, ran too close to the edge of the low stone barrier and gave me that glimpse of the fearful pit below.

"Take a look at that, Otto!" I cried, whereupon Nestman stole a hasty glance, commented briefly "That's fine!" and again occupied himself with pumping air into the fuel tank in order to force the gasoline up to the carbureter, which now stood at a level considerably higher than the tank, owing to the increasing steepness of the grade.

The road, no longer forest protected, the vehicle had added to its handicap a breeze that approached a gale, and we crouched low to decrease the wind resistance that retarded us.



WHAT A BACKGROUND FOR A MOTOR PICTURE

Higher we climbed, and every yard enlarged the grand panorama that spread around us. We looked south and beheld the Saco country, then to the east and gazed at the lakes and peaks of Maine, now to the north and discovered villages and acres of fertile farmland.

But the road was rough; it had stones in plenty and newly placed, shifting sand of uncertain footing.

"Lord, but this is rough!" ejaculated Otto. And still the throbbing little vehicle ate up the incline with an eager appetite that filled us with joy and caused a forgetfulness of the piercing blast that touched our very marrow.

Occasionally the road improved for a stretch, and the second speed of the machine had a brief inning. It was almost continually a case of first speed, and only once—before we got clear of the timber line—was there use for the third speed.

Rocks were all about us, above and below, cruel and cleft ones, with the summit looking gray and somber. Nestman skillfully avoided the big stones that strewed our course, but there remained many a one that jarred our vehicle and vibrated to our benumbed bodies.

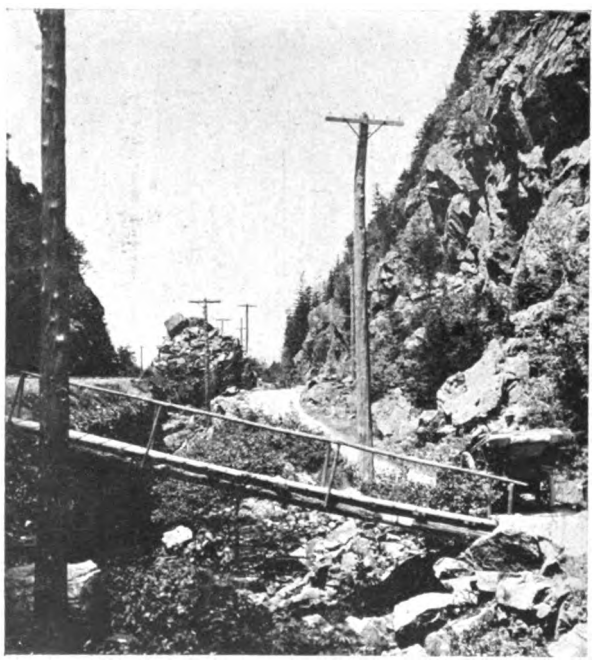
Patches of snow were plentiful, and the bright sunlight gave to them a whiteness that was of the purest tone.

The five spurs to the eastward that are in the road to the clouds tell the topographical story of Northern New England, but the grand view of all is not produced until the crest is attained. When Otto and I got our glimpse of the Summit House, how we tore up that final stretch of rocky road! What cared we for stones or punctures; the goal was in sight and the record was ours by a big count. My watch gave it as 48 min. 30 sec. consumed when we reached the stairs leading to the hotel on top—2:18:30 o'clock, and we started at 1:30 o'clock.

To make a mistake impossible, we dashed up the steps to the hotel, burst into the astonished presence of Miss Clark, whose clock read "2:10,"



DURING THE RUN THE PARTY CALLED ON ETHAN ALLEN CRAWFORD, WHOSE FAMOUS ANCESTOR FOUGHT IN '76



A GLIMPSE OF THE CRAWFORD NOTCH

though she admitted that it had become a little slow up there in the variable weather. Just 30 seconds less than an hour was the margin by which Mr. Phelps' climb had been bettered, though it must be said that his journey was accomplished with a heavier car, but of more horse-power.

Nestman and I had never been up the carriage road before, and because of this fact the chances for a record by the Stevens-Duryea were not rated very bright when we left our party at the Toll-Gate.

Leisurely we descended, enjoying to the full extent the magnificent panorama unrolled before us.

Suddenly we met Mr. and Mrs. Harry Fosdick and their chauffeur, slowly yet steadily moving upward in a heavy Winton touring car. Mrs. Fosdick will undoubtedly have the credit of being the only woman to make the climb this year, as none will be permitted in the competing cars of the meet beginning July 11, and it is the intention not to allow motor

(CONTINUED ON PAGE 58.)

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THE GOSSIP OF PARIS

By Monsieur Carbureter

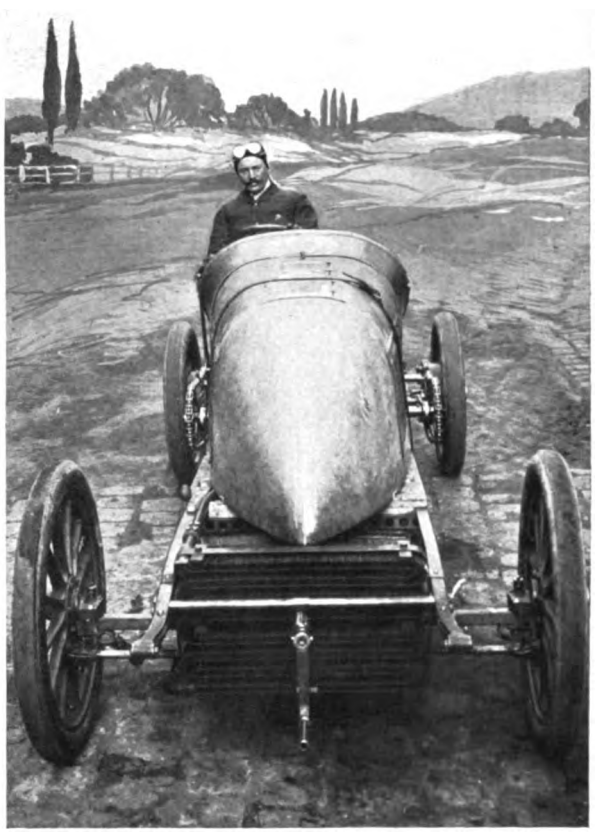
PARIS, June 13.—At the risk of slightly arousing the resentment of some of MOTOR'S patriotic American readers, I will remark that America's "fluke" and failure to send a team to Germany was regarded here as simply another punctured American bluff, and those American manufacturers who may be contemplating an invasion of the European market will not find their prestige and advertising much helped by the failure in question.

Americans living in Paris these days are not raised to the height of good humor by being asked: "Say, what's the matter with your automobile manufacturers over there in the States?"

That vague sort of human species known as the "average American" is unable to understand how American makers of anything related to machinery can ever take second place—in this instance, no place at all. "We make the best bicycles; why can't we make the best automobiles?" etc.

The Richard-Brasier makers sprung a surprise on the fraternity in the French elimination trials, particularly in taking account of its lower horsepower, compared with the several "hundreds" and even more powerful ones. The Gobron-Brillié machines were admittedly over the 100 mark, and they fulfilled the prediction, made by some of their trade enemies, that, while they might be great at kilometer dashes, they would not stand the strain and jar of a hard race of several hours' duration. The Panhard drivers had trouble with their motors, which became overheated. This fact also gave gossip to some of the "wise men" in the business, ever ready to assert that the Panhard "is not what it used to be." That assertion needs, perhaps, more verification than can be brought forward. Meanwhile, Panhard is doing the customary big business at the old stand, and various other makes of motor cars are wearing out, while the Panhard remains true to its traditions of being a "laster."

A general résumé of the showings made by the French machines in this contest admits of compliments for the Clément, comparatively new with regard to high powers; the Turcat-Méry, of course, hailed as a likely comer; the Dietrich (with the same system as the Turcat-Méry), and the Gardner-Serpollet steam charger, not quite so fast as the gasoline brigade, but always sure of a place. The new Hotchkiss machines, of which much was expected, and with good reason, had "hard luck." The fault of running into a ditch must be blamed on the driver and not on the machine's mechanism.



HENRI FOURNIER AND THE RACING HOTCHKISS

The odor of burnt petroleum is mingled with the fragrance of bright flowers these fine days in Paris. Motor activity is at the maximum, and such popular driveways as the Avenue du Bois de Boulogne and the Avenue de la Grande Armée resound continually with the hoarse hoot of the danger horn. Up and down the Champs Elysées, around the Arc de Triomphe on the place de l'Etoile, they go—big ones and little ones, petrol and electric, red ones and green ones—everybody seems to be rich enough to own a motor car and burn gasoline at a dollar a minute. The entrance to the Bois de Boulogne from the Avenue de la Grande Armée is probably the most "auto-traveled" spot on earth, as it is the line of demarcation between the automobile trade centre of Paris and the trying-out arena. Only a few turns of the wheels bring the machine from the shop and showrooms to the great parade ground, the Bois.

The fine days are bringing out the motor parties for short or long excursions, and the limousines and cabs of the spring have given place to the open tonneau and other fresh-air types of bodywork.

Over a hundred motor vehicles of every description, including many electrics and a number of gasoline machines that ran quite as quietly, participated in the annual Fete des Fleurs that was held in Paris during a recent Saturday and Sunday. All of the cars in line were beautifully decorated with choice blossoms, and a prize was awarded the handsomest vehicle. This was captured by Mlle. Dorgère, in a voiture fairly covered with lilies and roses, and bearing in front an immense swan built of the same flowers.

The automobile accident crop is already assuming record-breaking proportions. Every day somebody has a smash, and the regularity of the catastrophes would be proverbially amusing were it not for the terrible results. The accident at the railway crossing of Ozoir-la-Ferrière, in which six persons lost their lives, was the worst ever known as regards mortality, and the crossing keeper who left the gates open will, no doubt, have to "do time" for his criminal neglect in not being at his post.



LA VOITURE DE MLLE. DORGÈRE À LA FÊTE DES FLEURS

Strange as it may seem, the little machine, the voiturette, which a year or so ago was going to drive the monsters off the roads, has changed its mind. There are more big machines than ever—such as Mercedes, Rochet-Schneider, Mors, Panhard, Gobron, Dietrich, etc., and the sight of eight or ten passengers on a big vehicle is not uncommon.

Speaking of big machines, I will mention that Miss Hockenhull, of Boston, who has been driving a 200-horsepower machine about France, has "come down"

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HOW THE FRENCH GOVERNMENT ASSISTS IN MOTOR RACING ON THE ROAD

to a 60-horsepower Mercedes, which she says is fast enough for ordinary purposes.

E. H. Butler, proprietor of the Buffalo *News,* recently arrived in Paris, intent upon buying a big motor car. He rather favors the Panhard.

According to M. Maurice Martin (in the *Velo*), who is the French national statistic "fiend" in automobile and cycle affairs, the automobile census of the department of the Seine, which practically means Paris, is as follows: Automobiles, more than two places, 2852; one to two places, 734; total, 3386; showing an increase of 869 over 1903. Motorcyclettes (motor bicycles), 3289; showing an increase of 595 over 1903. Bicycles, 201,223; showing an increase of 504 over 1903.



A "CONTROLE" AT VOUZIERES IN THE FRENCH ELIMINATION TRIALS

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A MOTOR PARADE IN THE LAND OF SUNSHINE

The motor parade is an established institution. First suggested in Denver, Colo., it promptly became the vogue in the East, and motorists of many New York, Chicago, Cleveland, and other large cities vied with one another in popularizing the modern means of transportation by well-organized and extensive parades.

From the East the motor parade traveled West again. Mindful of the far-famed success of that city's "fiestas," in which hundreds of flower-bedecked,horse-drawn vehicles lined up annually in an imposing mid-winter procession for the edification of Eastern visitors, the motorists of Los Angeles in Southern California were quick to perceive that a modification of the same idea might be made to further the local propaganda of the motor car.



ON MAGNOLIA AVENUE, RIVERSIDE, CALIFORNIA

So a week or two ago two big electric tallyhos, containing the Santa Catalina Marine Band, threaded the streets of the metropolis of the "Land of Sunshine" at the head of a marching array of motor vehicles, in the aggregate representing a value of nearly a million dollars. The parade was divided into six divisions, and included twenty-seven steamers, ninety-five gasoline cars, and ten electrics, besides a considerable number of commercial vehicles of all types. The line of march lay through both the residential and business sections of the city, and so great was the interest that all along the route spectators banked the sidewalks and crowded the windows. As special guests, a number of the city fathers, including the Mayor, the superintendent of streets, the chief of police, members of the city council, and representatives of the Chamber of Commerce, were taken along. The mayor of Pasadena and officials of that city also were in evidence.

For the benefit of the foregoing contingent, and incidentally for the public in general, particular pains were taken to demonstrate the general safety of the motor car and the absurdity of four and eight mile an hour speed ordinances, which at present prevail in Los Angeles. At a point along the route, several cars selected for the purpose and plainly placarded with the speeds they were selected to demonstrate, crawled past the reviewing stand at four, eight, and fifteen miles an hour. As a result of this demonstration, the chief of police and a number of his subordinates frankly admitted that they were convinced of the injustice of an eight mile an hour limit, and expressed their surprise at the astonishing control which the drivers seemed to have over the cars.

Prominent among the paraders was Mrs. L. H. Percy, who led the entire procession in a large car that she handled with exceptional skill and considerable daring.



THE FIRST MOTOR-VEHICLE PARADE EVER HELD IN LOS ANGELES

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THE MOTORISTS' SUMMER CAPITAL

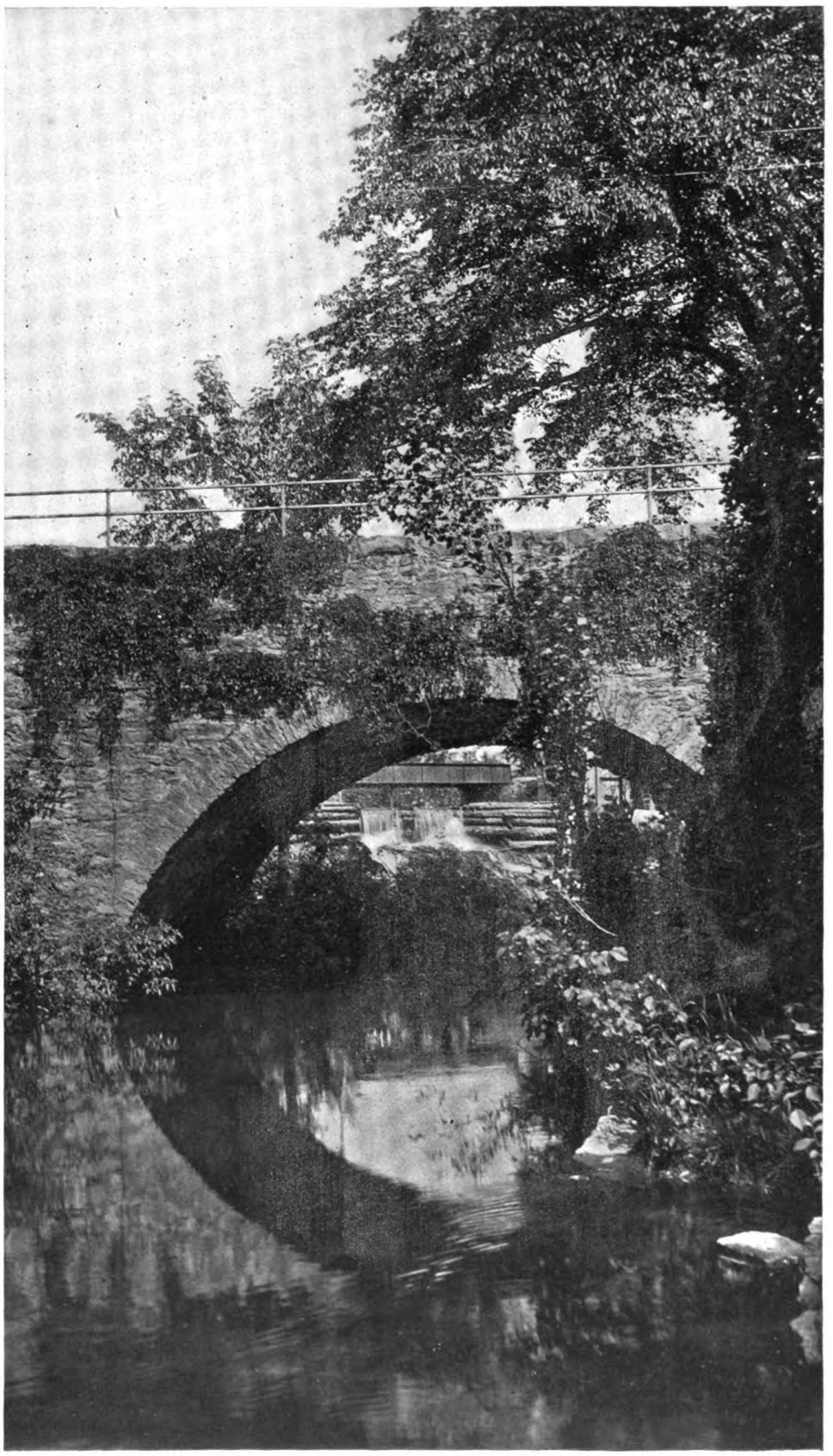
By Robert Bruce

When, in earliest summer, the highways along the Hudson River, across the Berkshire Hills and through the Mohawk Valley become inviting to the motor tourist, Saratoga looks at the calendar and bestirs herself with active preparations for another season. From May to November she is wide awake and never tires in providing superb entertainment for hundreds of thousands of visitors from all over the world; the balance of the year, however, even the sense of time may lapse. The visitor from November to May concludes that everything is locked up and the key is lost; but it is only carefully laid away, and at the first sign of the oncoming cohorts, the gates are opened wide.

The Saratoga of a former day waited some social sign—or some famous sporting event—to formally open her season, and thereby lost much in interest as well as in patronage. For the eternal freshness of May and the superb fullness of June are nowhere more enjoyable than in that extensive natural parkland between the upper Hudson and the foothills of the eastern Adirondacks. Of all this section Saratoga is the geographical as well as the social center; and the tourists who come by road—motorists, cyclists and carriage owners—naturally appreciate these things more than other travelers who come by rail.

The roadways along the Hudson River bring up from New York and below; those across the Berkshire Hills from Boston, Worcester, Springfield and other New England cities and towns; those from the Mohawk Valley from Northern New York State and the West. When the saucy "teuf, teuf, teuf" from the numbers of motor cars that have made their way from distant centers of wealth and fashion are heard at the famous Spa, there is no longer any need of sentinels to wake the slumbering residents. This experience begins long before the "Saratoga Limited" is put on from New York, and it precedes the improved and quickened summer train service over all the tributary tourist lines. And not until long after the rail-and-trolley car crowds have gone does the Saratoga district pass under eclipse as a motormobile touring ground.

From April to July motor cars multiply as if by magic. A large proportion of the well-to-do summer residents all the way from Ballston to Mount McGregor, from Stillwater to Schuylervile, bring their vehicles with them, as well as those summering in Saratoga itself, together with many of the cottagers at the great hotels. Every well-known American type and a goodly variety of the imported machines are represented in this ownership, until the collection of vehicles at the height of the season is possibly the most complete of any summer colony in the world. There is no festive occasion in which the motor car does not have some part, and in the floral parades it is conspicuous above all other conveyances for artistic decorations.



ONE OF MANY PICTURESQUE SPOTS NEAR SARATOGA

The name of Saratoga is derived from an old Indian name, Se-rah-ta-gue, meaning the "country hillside of the great river," referring to that tract of land lying six miles back on either side of the Hudson, and fifteen miles in length, embracing the present townships of Saratoga and Stillwater on the west and Easton on the east side of the river. This tract was deeded by the Indians, in 1684, to Philip Peter Schuyler and six other citizens of Albany. The tract embracing the present springs was called by the Indians Kay-ad-ros-se-ra, the "lake country," and was a favorite hunting ground, whose name is now retained for a large stream flowing through the county and emptying into the Hudson at Mechanicville. When the mineral springs were first discovered by the whites, they unwittingly called them the "springs near Saratoga," though situated several miles distant from the real Se-rah-ta-gue, in another hunting ground; and thus the less distinguished robbed the more noted of its fame.

With its broad, clean, tree-arched

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streets, and numerous open spaces, Saratoga is in reality one vast park. Special mention must be made of Woodland Park, which, though a private property, is thrown open wide to the public, and shares with Saratoga Lake in popularity. A short distance away from the downtown districts one sees home-life, quiet or gay, sober or festive, in numberless houses stretching away through well-swept streets and boulevards. Around all this is the charming open country, with woods, lakes and meadows, and mountain ranges to fringe the blue horizon. Every house has its own private grounds, and exhibits a refreshing freedom of design, as if the owners had their own ideas of comfort, and meant that their homes should express themselves. If they do, then surely the Saratogans are a goodly people, hospitable and agreeable. Everything is neat as wax, and there is an elegant finish about the houses and gardens that is infinitely interesting and comforting. There is, however, no regular system about the streets, and one must learn the way around Saratoga as around Newport; likewise inquire the way to the various nearby resorts. You cannot get a mile away, however, without noticing the rural charm; and then it is you come to see how a place can be made or unmade by its environs.

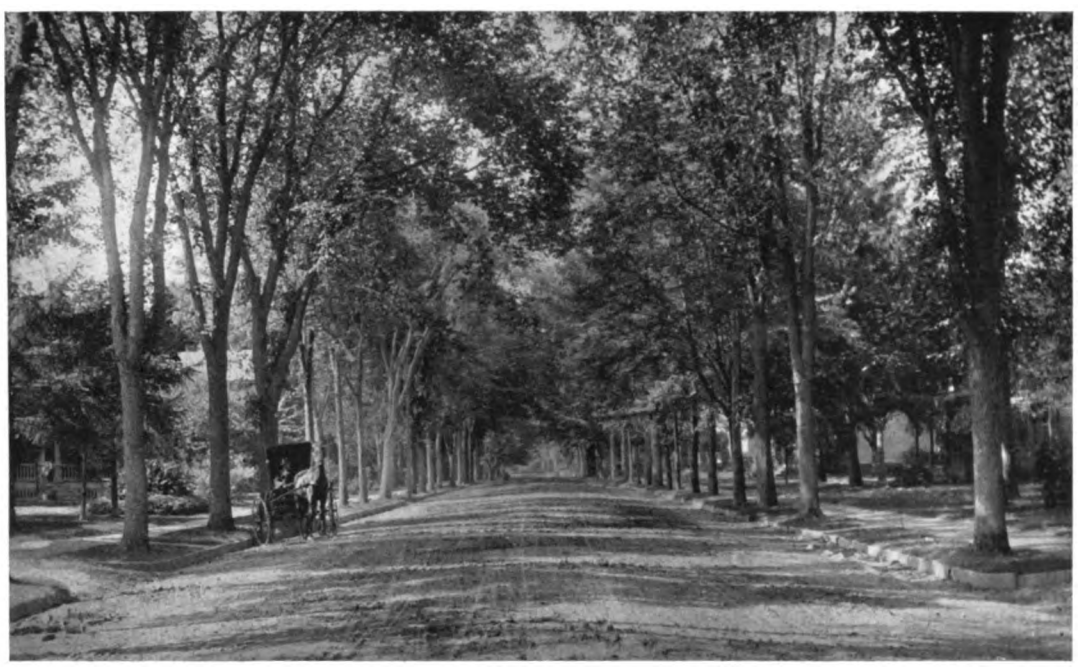


SARATOGA BEFORE THE VISITORS ARRIVE

There are men now living who remember the present magnificent Broadway, Saratoga, as a country road, bordered here and there by a house. Sixty years ago there was not a mile of railroad above Albany, and stages ran back and forth through attractive country but over unimproved roads. The principal landmarks at that time were three unpretentious inns, bearing the same names and occupying the same relative positions as the Congress, Grand Union and United States hotels of to-day. Ballston and Lebanon Springs disputed with it the right to be called *the* American Spa. Up to within comparatively recent years, except for those who came and stayed for the waters, few out-of-town people lived at Saratoga the summer through. There was not enough variety to the place, and no way of getting around in comfort and style. A day at old-time Saratoga began with a walk to the Springs, a drink of one's favorite water, and breakfast, over which one lingered —sometimes because the waiter enforced patience, but more likely because there was little else to do than to sit down on the broad, shaded piazzas and wait for noonday. The afternoon was much like the morning, and only the evening brought real entertainment. But now the hotel is only a headquarters, and the races, the lake and the country roads furnish the entertainment and recreation.

When Saratoga began to adjust herself to the new conditions, she started some years ago to build up around the springs a really interesting and attractive community and resort. That this has been done is proven by the multitudes that throng its hotels and enliven its thoroughfares during all the summer. The average person likes to spend a vacation where men and women well known in society, business and politics are accustomed to go—in so much that the summering of notables at any point is the surest means of bringing thither the transient recreationist of means. Saratoga has gained this vantage ground by reason of persistent enterprise, and without counting the expense.

For one thing, and that the most important of all to the motorist, excellent roads lead in and out in every direction. The nearby points of interest stand out the better because of their added accessibility on account of good roads. Within the past few years upward of $100,000 has been spent in local highway improvement. A boulevard 100 feet wide, with shade trees in the center and on either side, connects the city with Saratoga Lake, a broad and beautiful sheet of water set in attractive landscape. The dust is kept down from end-to-end of this highway, and over it moves throughout the season a cavalcade of gay equipages from early afternoon until after dark. Side by side in this procession are the motor car, the barouche, landau and dogcart, the democratic carryall and the passenger omnibus.



STREETS LIKE THIS INVITING ONE ARE NUMEROUS

With improved facilities for going in and out of Saratoga by road, new attractions offer themselves in surprising number. One may ride out to where Burgoyne surrendered his army, or trace the course of the waters from the "Ten Springs" on the north to the "Spouting Geyser" on the south. Then there is the interesting but no longer rival Spa, Ballston, with Round Lake and its assemblies, just beyond. Lake Lovely, Glen Mitchell and the incomparable hills invite the motorist. Congress Park has always been a pleasant resort, with its winding drives, its rich green turf and its abundant shade—an ideal place. And only twelve miles away, with a fine road leading to the very summit, is Mount McGregor, where General U. S. Grant died; this run is a splendid trial of power and endurance for a road motor. In fact, there is occupation and variety enough in and about



THE ROAD BESIDE THE LAKE

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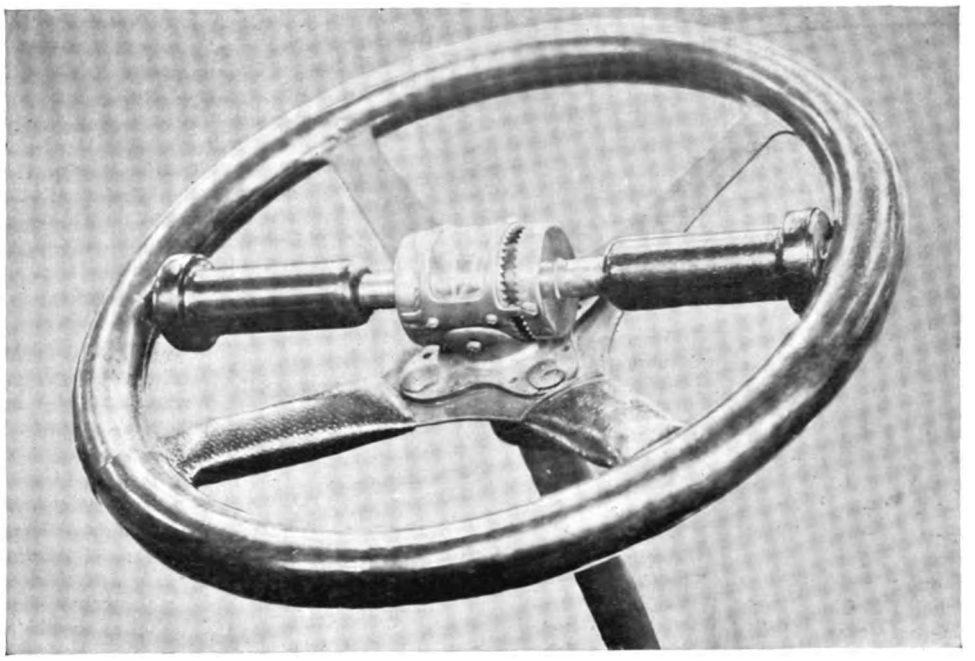
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UTILITY AND SPORT IN MOTOR RACING

By One Who Races

Motor-vehicle racing has been widely railed against from many quarters, but the lapse of time is bringing its inevitable vindications, and each passing year sees this aspect of motoring firmer intrenched as a factor of tremendous interest and of unquestionable utility.

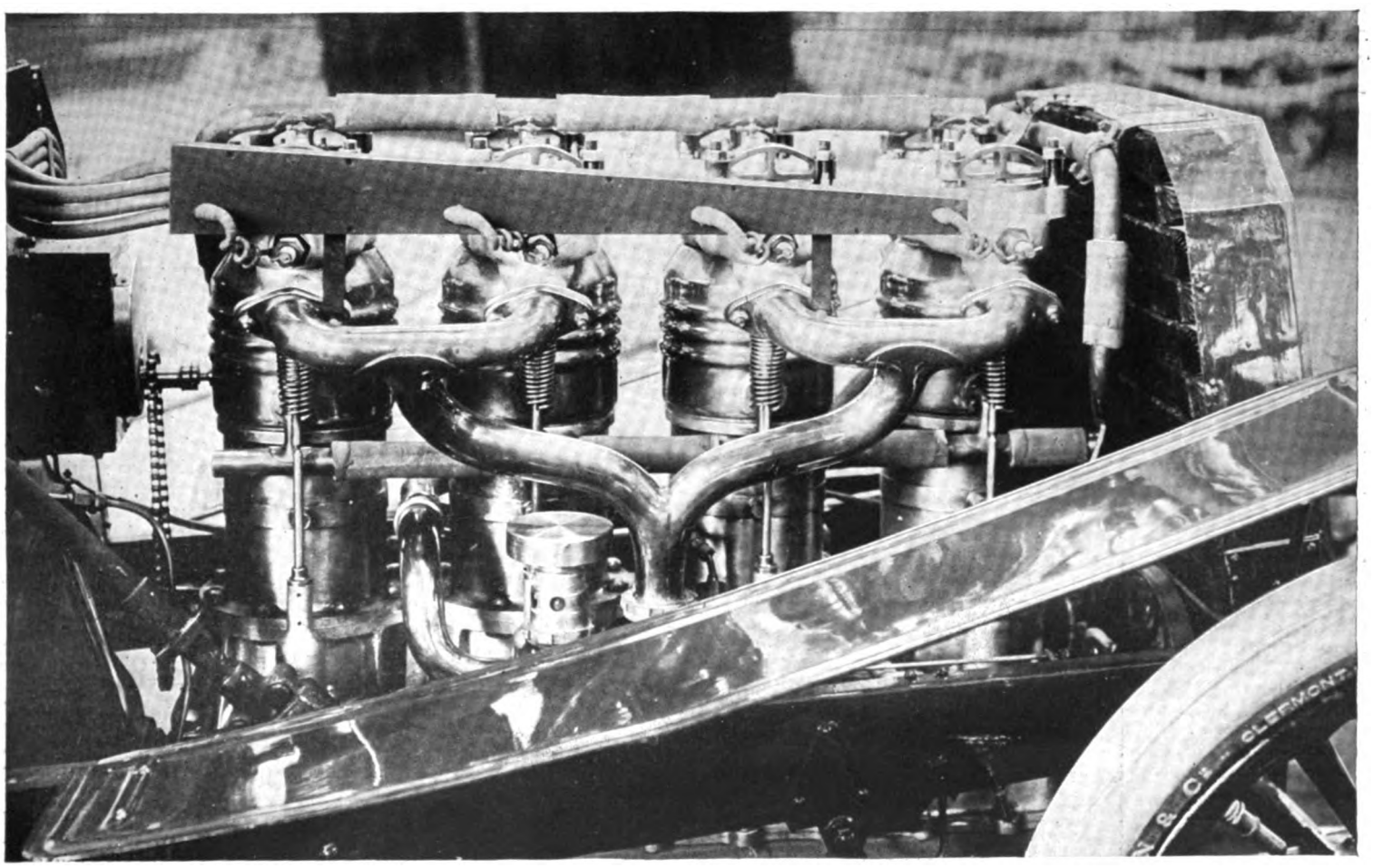
The utility of racing is now fully established. It is beyond doubt that the racing machine has been a most potent factor in refining commercial and pleasure cars to a maximum of power and utility, with a minimum of weight and complication. Road racing—track racing perhaps is an exception — constitutes a severer test of motor-car worth than any other that can be conceived. A few simple questions are enough to silence the hardiest doubter of this — the most persistent advocate of the fallacy that racing is chiefly notable for the creation of useless freaks.



A NEW SYSTEM OF CONTROL IN THE STEERING WHEEL

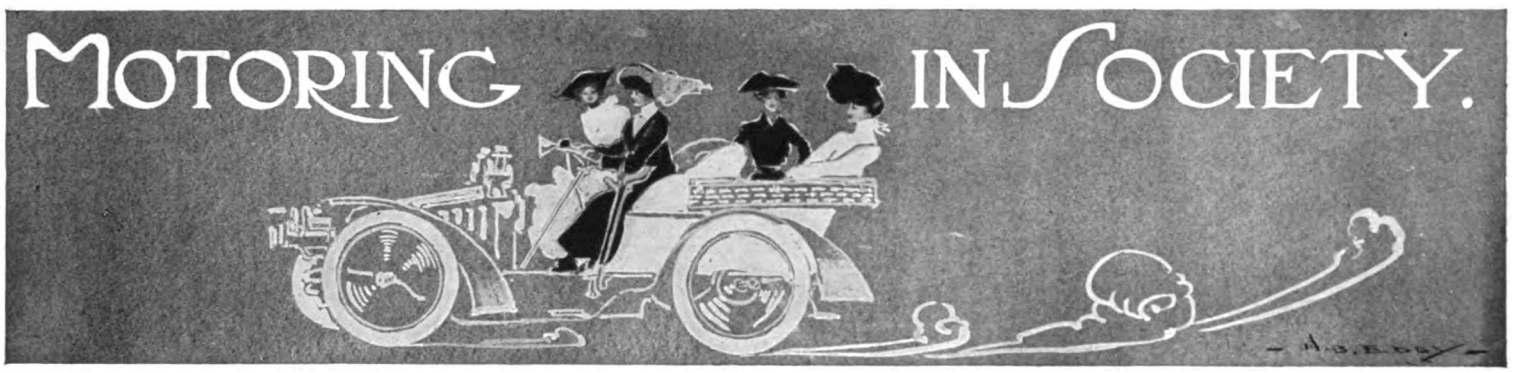
Is it credible that an engine capable of projecting a 2,200-pound car at maintained mile-a-minute speed over hundreds of miles of country road is not powerful and reliable enough to take the ordinary touring car or delivery wagon anywhere it need be taken? Is a frame that withstands the unremitting shocks and rending stresses of whirlwind going likely to give way under the mild demands of ordinary travel? Are wheels that fail to fly to pieces when spun over a road at a thousand revolutions a minute likely to break down when rarely run one-third as fast? Are tires, which endure such prolonged thumping and pounding over the humps and hollows of roads that they become hotter than boiling water, going to disintegrate from easy rolling over fair highways? And springs, which safely ease a ton of roaring metal over a sag in a road that passes 150 feet to the rear with every swing of the pendulum—will they break under the negligible jolts of moderate running? Or shafts and bearings, which purringly transmit from engine to driving wheels an energy equal to the full strength of a hundred powerful horses — can they prove useless on a twenty - horsepower car that is rarely required to develop ten? Will cooling systems that dispose of excess heat developed by the flashing into flame of a gallon of gasoline a minute prove inadequate on a car that makes twenty miles on the same quantity of fuel, and takes thirty to sixty minutes to do it? Are steering gears, which at better than a mile a minute juggle with reverse curves that would cause the most experienced locomotive engineer to pale, dangerous to depend upon for the easy gliding about that constitutes their commoner service? And brakes

(CONTINUED ON PAGE 46.)



THE EIGHTY-HORSEPOWER PANHARD ENGINE WITH INDIVIDUAL CYLINDERS AND ATTACHED WATER JACKETS

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Miss Alice Roosevelt, on the occasion of her first visit to the exhibition at St. Louis, met with a little adventure which caused her to use nothing but motors throughout the remainder of her stay. She drove up to the entrance of the World's Fair in a carriage and pair. But as the officials on duty there had been notified that she would arrive in an automobile, they declined to recognize her, or to admit her equipage. Nor would the gate-keepers listen to any explanations, and the result was that the President's daughter and her party, instead of being permitted to drive into the grounds, were compelled to alight at the entrance, to pay for their admission, and then to do quite a lot of walking after they had once passed in, before they reached their destination. Taught by this experience Miss Roosevelt made use of automobiles throughout the remainder of her visit to St. Louis, and the exhibition authorities being apparently of the opinion that this was the only style of conveyance befitting the dignity of the daughter of the President of the United States, offered no further difficulty to her admission at the gates and to her driving about everywhere in the grounds to her heart's content.

* * *

An electric brougham and a large handsome touring automobile were among the wedding presents received by Miss Helen Roosevelt, granddaughter of Mrs. Astor, on the occasion of her marriage the other day at Hyde Park on the Hudson to Theodore Douglas Robinson, a son of Mrs. Douglas Robinson, who is a sister of President Roosevelt. The wedding was a very brilliant affair, attended by both the President and by Mrs. Roosevelt, while the bridesmaids included Miss Caroline Drayton, another of the grandchildren of Mrs. Astor, Miss Alice Roosevelt, Miss Corine Robinson, Miss Mary Newbold, Miss Eleanor Roosevelt and the two Misses Wolryche Whitmore, of England. Hugh Minturn, Stewart and Monroe Douglas Robinson, Eugene Thayer and Franklin Roosevelt were among the ushers. James Franklin Roosevelt, the father of the bride, and formerly Secretary of the United States Embassy in London, entertained the entire wedding party at dinner at his country place on the eve of the wedding day. The bride has inherited a very large fortune in her own right from her mother, the late Mrs. Roosevelt, who was a sister of Colonel John Jacob Astor, of Mrs. Orme Wilson, of Mrs. Ogilvy Haig, and of the late Mrs. James J. Van Alen. Colonel and Mrs. Astor being still in England and Mrs. Astor herself in Paris, while J. J. Van Alen was in Canada, the Astor family may be said to have been somewhat conspicuous by its absence at the wedding.

* * *

It is to the motor that Reginald Vanderbilt is indebted for his escape on two separate occasions recently from the myrmidons of the District Attorney's office, who were bent on serving subpœnas upon him during his stop-over in New York on the occasion of his recent trips between Newport and Philadelphia, at the time of the Quaker City Horse Show. The process servers were looking for their quarry at the railroad station, and at the Pennsylvania Railroad ferry houses. But Mr. and Mrs. Vanderbilt, on their way to Philadelphia left the train at the Hundred and Twenty-fifth Street station instead of at the Grand Central Depot, entered their automobile, which was waiting for them there, and drove to Sherry's, where they dined before going on to Philadelphia, crossing the river by means of the Fort Lee Ferry, whence they drove to Jersey City. They adopted a very similar manœuvre on the return journey, leaving the train at Elizabeth, N. J., and proceeding in their motor from thence to Fort Lee Ferry, where they crossed the river, and, after lunching at Sherry's, took the train at One Hundred and Twenty-fifth Street for New Haven, where they joined the fast train for Newport. Reginald Vanderbilt did not even take the precaution of wearing goggles, but trusted entirely to his automobile, thanks to which he was able to defeat all the efforts to serve papers on him by the District Attorney's office.

* * *

Society is now scattered around the various summer resorts, being found, as usual, in largest numbers at Newport, Bar Harbor, Lenox and Southampton. Each year we are informed that the popularity of Newport among the fashionable set is on the wane. But there is no sign thereof this summer, and the season there promises to be as brilliant as ever. Already the number of automobiles which have arrived surpasses that seen there in any previous year, and apparently every cottager has at least half a dozen machines in his stables, and motors are flying about in every direction, nobody dreaming of going about on foot. The plans for the conversion of the Newport Country Club into a new automobile club are rapidly materializing, and as the Country Club has been on a non-paying basis for years, its transformation into an auto club offers few difficulties. The clubhouse is a very handsome building, perfectly appointed and situated on a high elevation in the Ocean Drive section, and has splendid and extensive grounds. Indeed it will be an ideal place for the new auto club, in the reorganization of which Alfred and Reggie Vanderbilt, Colonel John Jacob Astor, Foxhall Keene and others are interested.

* * *

Bar Harbor offers less promise of gayety this summer than Newport. The death of Levi Z. Leiter has the effect of closing one of the most hospitable houses of the place, and will likewise keep away Lady Curzon, whose visit was expected to add no small glamor to the season. True, the Russian and Austrian Embassies are established there for the summer, and Count Cassini has already arrived there with his automobile. But as long as the war lasts he will be debarred by etiquette from entertaining on any extensive scale, while the ill health of the Baroness Hengelmuller will prevent the Austrian Embassy from contributing toward the brilliancy of the season. Lenox is more fortunate in this respect, for as the British Ambassador, Sir Mortimer Durand, and the German envoy, Baron von Sternburg have taken up their residences for the summer and are hospitably inclined, all the Germans and English of note who visit the United States this summer will be entertained there by representatives of their countries. Sir Mortimer and his daughter are devoted



AN ACME MOTOR CAR MAY PARTY IN CENTRAL PARK

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to riding. But Baron and Baroness Sternburg seem to prefer the motor and have taken several machines with them to the popular Berkshire resort.

* * *

The Suburban Handicap, which race-goers consider the greatest race in America, was remarkable this year for the small number of coaches at the course, and the immense quantity of motors. Formerly coaching parties to the Suburban were exceedingly popular, and fashionable society drove to the races behind spanking teams of four-in-hands. This year they elected to go by automobile, and with the exception of the "Viking" and the "Venture" the road coaches run by Robert Gerry and Alfred Vanderbilt, there was not a single drag to attract attention, everybody apparently having made the trip to the races by motor.

* * *

The exodus of society to Europe this year has been exceptionally large, and nearly all of the well-known people who have gone abroad, have announced before leaving that the object of their trip was to make an automobile tour either through the United Kingdom or on the Continent. The preference thus shown by those who can afford to indulge in the sport of motoring, for tours in Europe rather than in this country, is attributable of course to the immense superiority of the roads abroad. French and Italian roads are the very best in the world, and those of Germany and Austria are but little behind in this respect, while the English roads are far better than anything to be found in America. France spends no less than $40,000,000 a year on her roads, the cost being divided between the National Treasury, the Provincial Exchequer and the various parishes, and they afford opportunities for automobiling and for delightful motor tours which it would be impossible to enjoy on this side of the Atlantic.

* * *

Pharaoh's daughter, garbed in the daintiest toilettes, was seen racing along the Shore road in a big Panhard automobile, a few days ago, bound for Coney Island, where she spent the afternoon and evening with her husband and her attendant train of pashas and boys. Eldest child of the late Khedive Tewfik, and sister of the present Khedive or King of Egypt, she is one of the most emancipated of Mohammedan women, and seems to consider that a filmy gauze veil is a perfectly adequate substitute for the heavy yashmak with which the Moslem women, in accordance with the dictates of the Koran, are accustomed in the Orient to shroud the whole of the face with the exception of the eyes. The Princess's husband is himself the grandson of one of the former rulers of Egypt, and after spending ten days or a fortnight in "doing" New York without attracting any notice or receiving the slightest attention on the part of New York society, they have gone on to St. Louis, and will visit the various big cities of the United States and the Pacific coast before returning home to the Land of the Nile.

* * *

Automobiling veils are rapidly taking the place of the unsightly goggles among those of the fair sex who are addicted to motoring. The women of the fashionable set on this side of the Atlantic, especially in and around New York, have almost entirely discarded these species of face masks when automobiling, and the shapeless leather coats are likewise now the exception rather than the rule, while at the meet of the Ladies' Automobile Club in London the other day, in which no less than three or four score motors took part, all of the women, who included the young Duchess of Sutherland, Lady Cecil Scott Montague, Mrs. Arthur Paget, Lady Brassey, Lady Viola Talbot, Princess Henry of Pless and the Duchess of Somerset, wore pink, white and soft gray veils in lieu of the goggles, and dainty biscuit or fawn-colored automobiling coats instead of the leather abominations. The parade was a great success, and was reviewed by Queen Alexandra, who is herself an enthusiastic automobilist; from the balcony of Buckingham Palace.

* * *

I hear that Gaston Menier, of chocolate fame, has ordered at Paris a forty-horsepower motor car, which is said to be the "dernier cri" as regards luxury. This huge "wagon salon" is to contain two beds, which can be hoisted to the ceiling when not in use, four armchairs, a dining-table, toilet outfit and a perfect heating apparatus. Entrance will be obtained by two side doors and a door at the end, the carriage being lighted by electricity.

* * *

Good-looking chauffeurs are beginning to prove a very serious social problem in England, in France and elsewhere on the Continent. Formerly the flighty young woman of fashion afflicted with a mania for the horse frequently fell in love with her groom, and there are several notable instances, besides that of the Countess of Ravensworth, of widowed peeresses and daughters of English peer and foreign noblemen falling in love with their grooms and marrying them. The groom has apparently had his day in this connection, and has been superseded by the chauffeur, for several cases have become known recently where heiresses of rank and family have lost their hearts to their father's chauffeurs, and have insisted on marrying them. Indeed, matters have now reached such a pass on yonder side of the Atlantic that a good-looking, well-mannered young chauffeur experiences a considerable amount of difficulty in securing employment in the best families. Elderly, homely and married men are taken on in preference, for a flighty girl is much more liable to lose her head when overwrought by the excitement of the fast driving of her automobile than when out riding on horseback attended by her groom.



MISS ALICE ROOSEVELT A-MOTORING AT THE WORLD'S FAIR

* * *

The Automobile Club of Great Britain is concerting measures with a view to the punishment by means of fines, suspension and expulsion of those of its members who render themselves guilty of "offences against the laws of etiquette and of good feeling which are well understood and generally observed by all classes of road users," and who "may by their behavior in causing unnecessary vexation and inconvenience to the public, prejudice the best interests of automobilism. Among such offences are included "the passing of other vehicles, cyclists or pedestrians at an immoderate speed so as to cause annoyance and alarm, the overtaking or passing of another vehicle which is proceeding cautiously down hill or approaching a corner, and so passing another vehicle as to drive it or others off the road." The club expects that the rules which it is about to formulate in this connection will prove effective, since the member who has been suspended or expelled will not only be debarred from the enjoyment of the privileges accorded by the authorities to the club, both in the United Kingdom and on the Continent, but is certain to be treated with exceptional severity by any magistrate who, called upon to try him for fast driving, finds that he has been turned out of the Automobile Club for offences of analogous character.

* * *

At the end of this month King Edward is to betake himself for a three weeks' stay at Marienbad, which will be exceptionally gay, and where many Americans have already secured accommodations for the month of August. While there the King will receive the visit in state of the Emperor of Austria, of his brother-in-law, King George of Greece, and of most of the members of the reigning house of Hapsburg. As usual the King will spend all his spare time in motoring about the environs of Marienbad, which are exceedingly picturesque. Last year he took along with him no less than four automobiles, and this summer I hear that he is to have six.

MARSTON.

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THE GIRL AND THE MOTOR BOAT

By Grace Margaret Gould

Truly the whole world of outdoor sports these modern days is possessed by charming femininity. The pleasure-loving American girl of the summer of 1904 has again emphasized this fact by adopting for her very own motor boating, the newest sport of the moment.

Motor boating is the poetry of motoring.



THE ADJUSTABLE PONGEE HOOD TO WEAR WITH ANY HAT



MADE OF PONGEE. FOR WEAR WHEN THE WIND IS BLOWING

Perhaps that is one reason why the summer girl is showing such a keen interest in the sport.

Then, there are other reasons, and good reasons, too, why motor boating especially appeals to the witching summer girl. To look attractive first and forever is one of the axioms of her life, and motor boating affords her an opportunity not only to enjoy herself, but, what is far more important, look well at the same time.

Motoring ashore invariably means dusty roads, and dusty roads demand disfiguring face masks and hats and coats purposely designed to protect the hair and the gown from dirt.

In motor boating the absence of all dust and dirt make it possible for the motor girl to throw aside her ugly looking face mask and to wear clothes which are not solely designed as dust protectors.

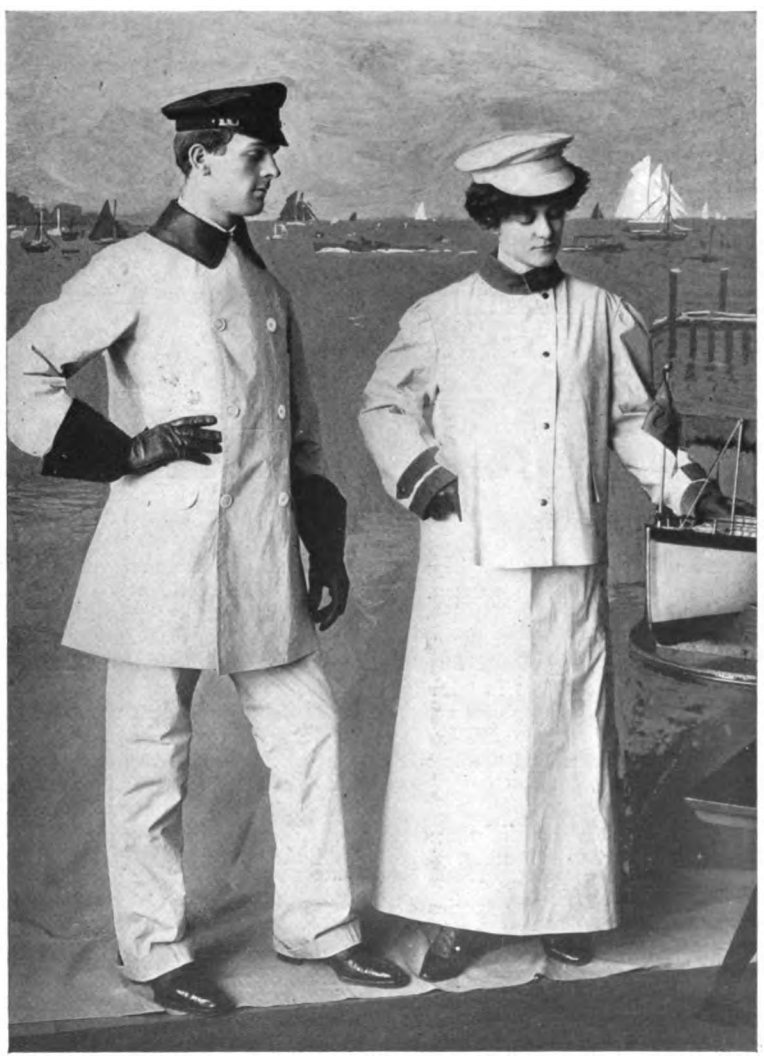
Of course, this does not mean that the motor girl arrays herself, when off for an afternoon jaunt on the water, as if she were dressing for a garden party fête. Laces and chiffons are not adapted for motor boat wear. But, in a neat little motor boat protected by canvas awning, she can wear jaunty looking caps and smart looking coats and skirts. If her boat has an uncommon rate of speed, and she goes in for racing more than for pleasure, then, of course, she must dress to protect herself from the wind, and, oftentimes, the water. However, the waterproof and the windproof caps purposely designed for the motor boat girl are actually things of artistic beauty in comparison with the head paraphernalia which this same girl has been accustomed to wear to protect her face and head from dust and dirt when speeding along the road in her motor car.

Then, incidently, here is a reason which may have something to do with endearing the sport of motor boating to the summer girl. Anyone who has tried knows that courtship in a motor car is difficult—but courtship in a motor boat is positively inevitable, especially when the neat little craft has been made with just room enough for two.



SILK MOTOR-BOAT CAP WITH SILK CURTAIN

In motor boating one is relieved of the ever present fear of collision, and the man who steers the wheel is not compelled to give his undivided attention to the task. He can guide the motor boat and entertain the girl a the same time.



THESE MOTOR-BOAT COSTUMES OF WHITE RUBBER SHEETING ARE THE LATEST FAD

Now, of course, the motor boat girl appreciates after her first outing on the water that she received just twice as much attention as if she had been motoring ashore. Hence she determined that her motor boat costumes shall do their part, and a big part at that, in making her attractive.

The summer girl is pretty apt to look her loveliest, to say nothing of the most youthful, dressed in white. The motor boat girl, knowing this, conceived the idea at once of having a white custume. It took considerable thinking to decide what material to have it made of, for it couldn't be filmy nor of such a fabric that the splashing of the water would ruin it, but at last she decided upon white rubber sheeting, which in every way proved satisfactory. She had it made in skirt and coat style, and it proved the jauntiest sort of a costume imaginable, to say nothing of its being appropriate in every way for the sport for which it was designed. The skirt was plain and made instep length, and the coat was a little box garment hanging full and straight back and front. Scarlet corduroy was used to trim the cuffs and collar. To wear with this suit she had made purposely a white rubber

(CONTINUED ON PAGE 56).

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THE COUPE INTERNATIONALE

HOW FRANCE REGAINED IT

By Monsieur Carbureter



THE MAN WHO WON

THE MAN WHO LOST

HOMBURG, June 18.—The coveted trophy known as the Coupe Internationale, generally referred to as the Gordon Bennett cup, goes back to France for another year, where, as a British visitor remarked last evening, "it should always have remained."

Théry won in the presence, not only of 50,000 people, but of the German Emperor, and the Emperor waved his cap at him as he shot past the grandstand over the finish line. Such royal honors were never bestowed on a motorist, and it is now evident that a motor race event and the winning "chauffeur" can raise as much palpitating interest and as much wild enthusiasm as a turf Derby and victorious jockey.

From a German standpoint, "the blow almost killed father," as France, with its comparatively new Richard-Brasier racer, took the prize away from the proud veteran Mercedes. The chagrin manifested "this side of the Rhine" is keenly felt by the German trade and fraternity, although, mind you, there was no inkling of it in the hearty congratulations which the Kaiser bestowed upon the French winner, nor in the message he sent to the President of the French Republic.

It will be traditionally correct to report that the Frenchmen present "went wild" with joy. It seemed for a moment that perhaps Théry had won back Alsace-Lorraine. The prize, however, was only a nice work of art, which in future years can float around among other nations.

The order on the first round, with respect to times made, was: Jenatzy, Théry, Edge, Girling, Jarrott, Salleron, Cagno, de Caters, Hautvast, Lancia, Brown, Werner, etc.

Then, on the second round, Théry gained ten minutes on Jenatzy, and the race was a duel to the end.

After all the contestants had thundered away on the first round, the crowd indulged in impatient waiting and speculation. When the first "speck" appeared on the horizon announcing the approach of the leader on the first round, the "Hochs!" resounded, and when the "speck" developed into a big projectile and shot past the grandstand like a noisy comet the "Hochs!" were for Jenatzy.

Pretty soon Théry came tearing by, and a rapid calculation showed that he was just one second slower than Jenatzy.

It was at the end of the second round that the French camp really shouted its war cry, for Théry was "to the good" by 1 minute 46 seconds.

Only the Kaiser was calm. He chatted with Baron de Zuylen, president of the Automobile Club de France, Mr. Clarence Gray Dinsmore, and Mr. Charlemagne Tower, and as for Prince Henry of Prussia, he went to the buffet and ate a ham sandwich. The temperature was oppressive, and the majority of the excited spectators were in a perspiration which suggested beer going and coming.

The crowd was "big and early." The course was admirably guarded, as the troops virtually lined the road throughout the entire circuit.

Théry, after he had won, came back along the course, and naturally everybody wanted to shake one or the other of his hands. He was as modest as a crowned hero could be under such circumstances, but he was supremely happy, and his smile was so overwhelming that he looked simply like a big grin in a dusty frame.

Jenatzy was also congratulated on his fine performance, but there were shades of sympathy in the kind words addressed to him, and, as he could not exactly figure himself out the hero of the hour, he shed a few warm tears, which ran down into his dusty beard.

The Kaiser, surrounded by several members of his suite, after the race received M. Brasier. The great monarch and the great motor car maker had a conversation lasting half an hour, at the end of which the monarch presented his delighted guest with his photograph, on which he had written: "To the great French engineer, Monsieur Brasier, as a souvenir of his victory on June 17, 1904. Wilhelm II."

The international commissioners who verified the result of the race were the Duke of Ratibor (Germany), M. Herrman (Belgium), M. René de Knyff (France), Count Sierstorpff (Austria), Mr. Clarence Gray Dinsmore (United States), and Mr. Orde (Great Britain).

The tires used on the German and Austrian Mercedes, the Pipe, and Opel-Darracq were Continental. Those of the Napier and Wolseley were Dunlop. Those of the Fiat, Richard-Brasier, Mors, and Turcat-Méry were Michelin.

The reported explanation made on behalf of Jenatzy for his defeat is to the effect that he lost time in obtaining some petrol, and that this delay cost him the race. Théry averaged 59.65 miles an hour, while the speed of Jenatzy was over a mile an hour slower, 57.84.

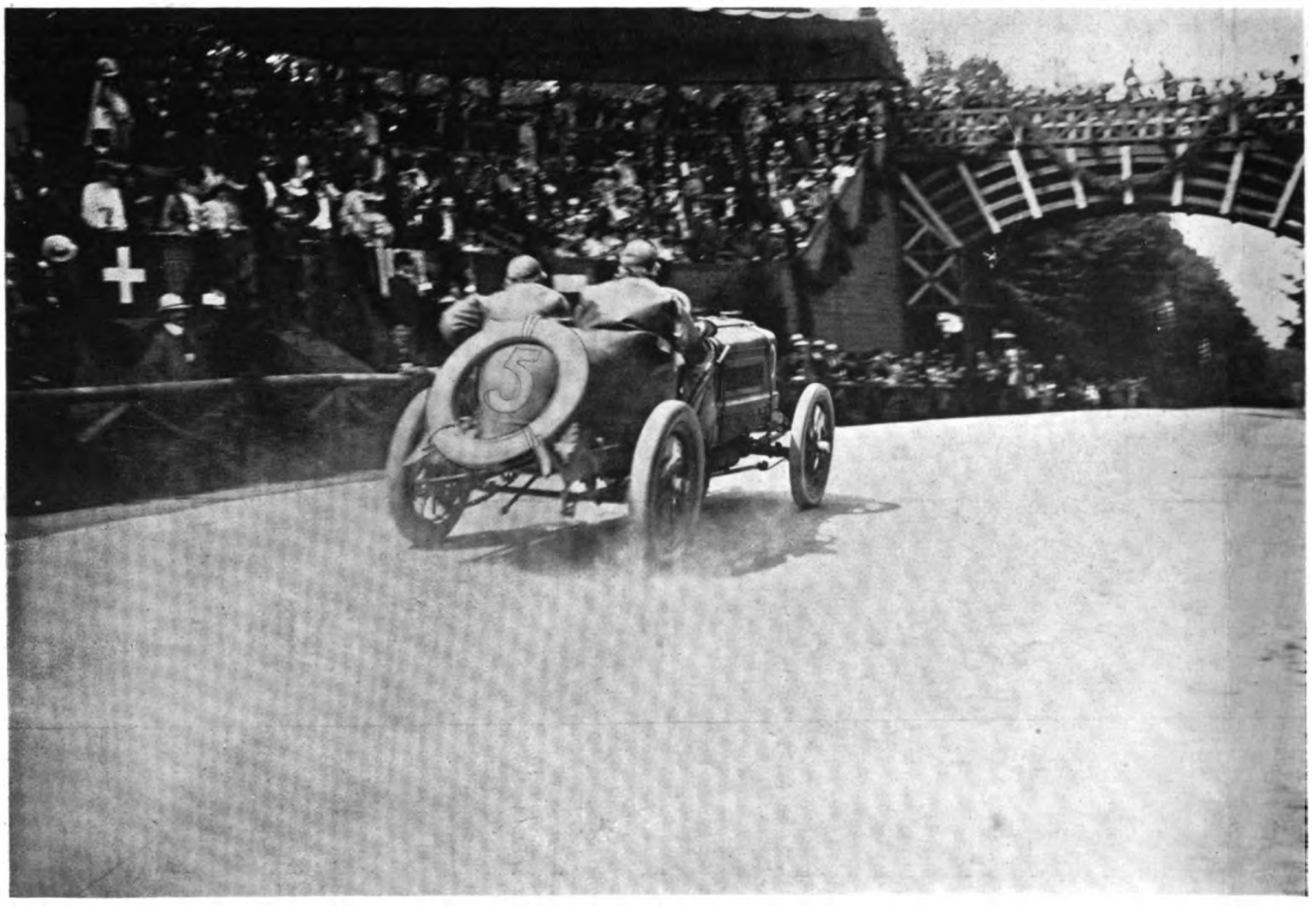


THERY AND HIS RICHARD-BRASIER AT THE START OF THE RACE

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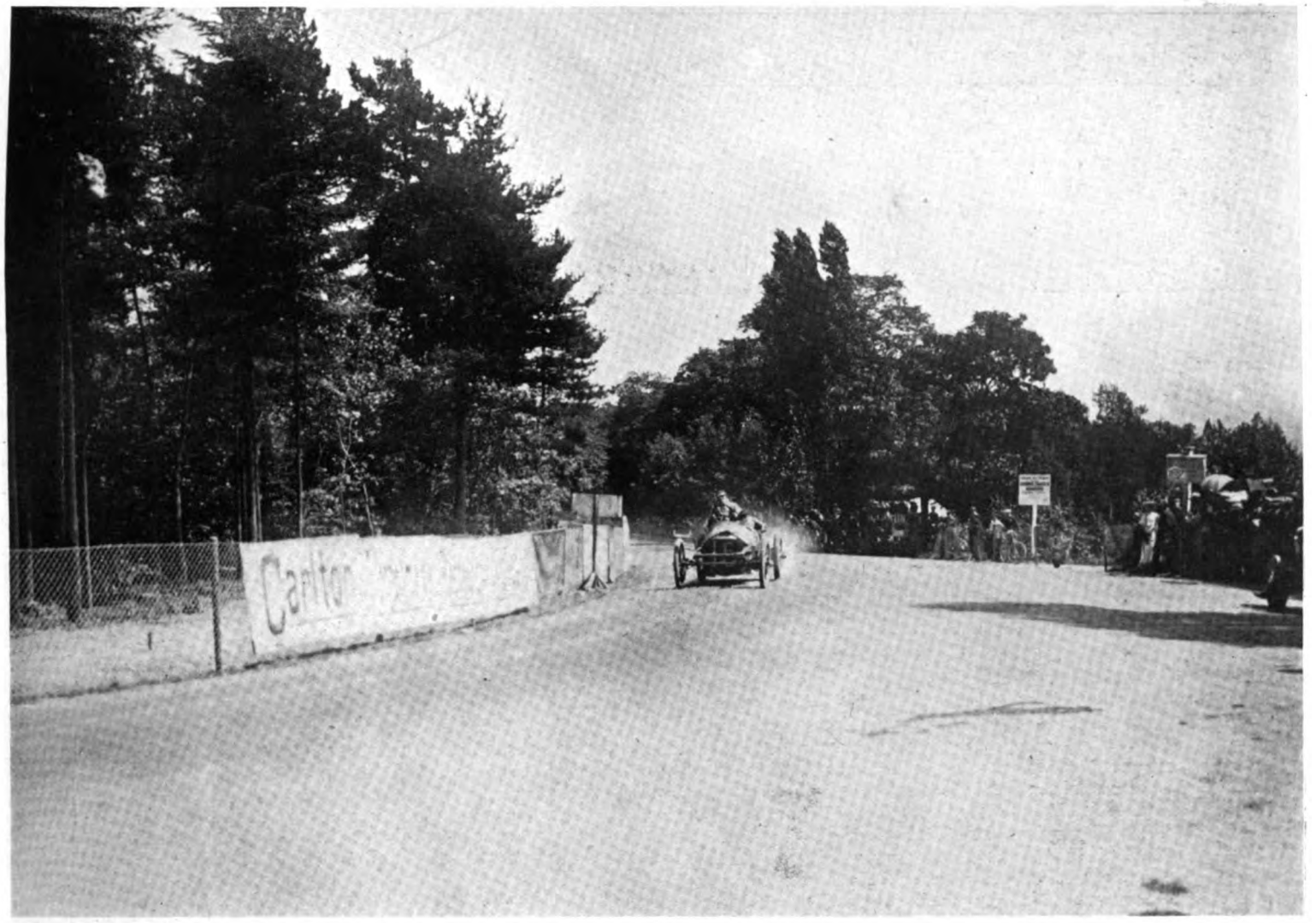


NEAR THE START WHEN THE CARS WERE BEING CHECKED

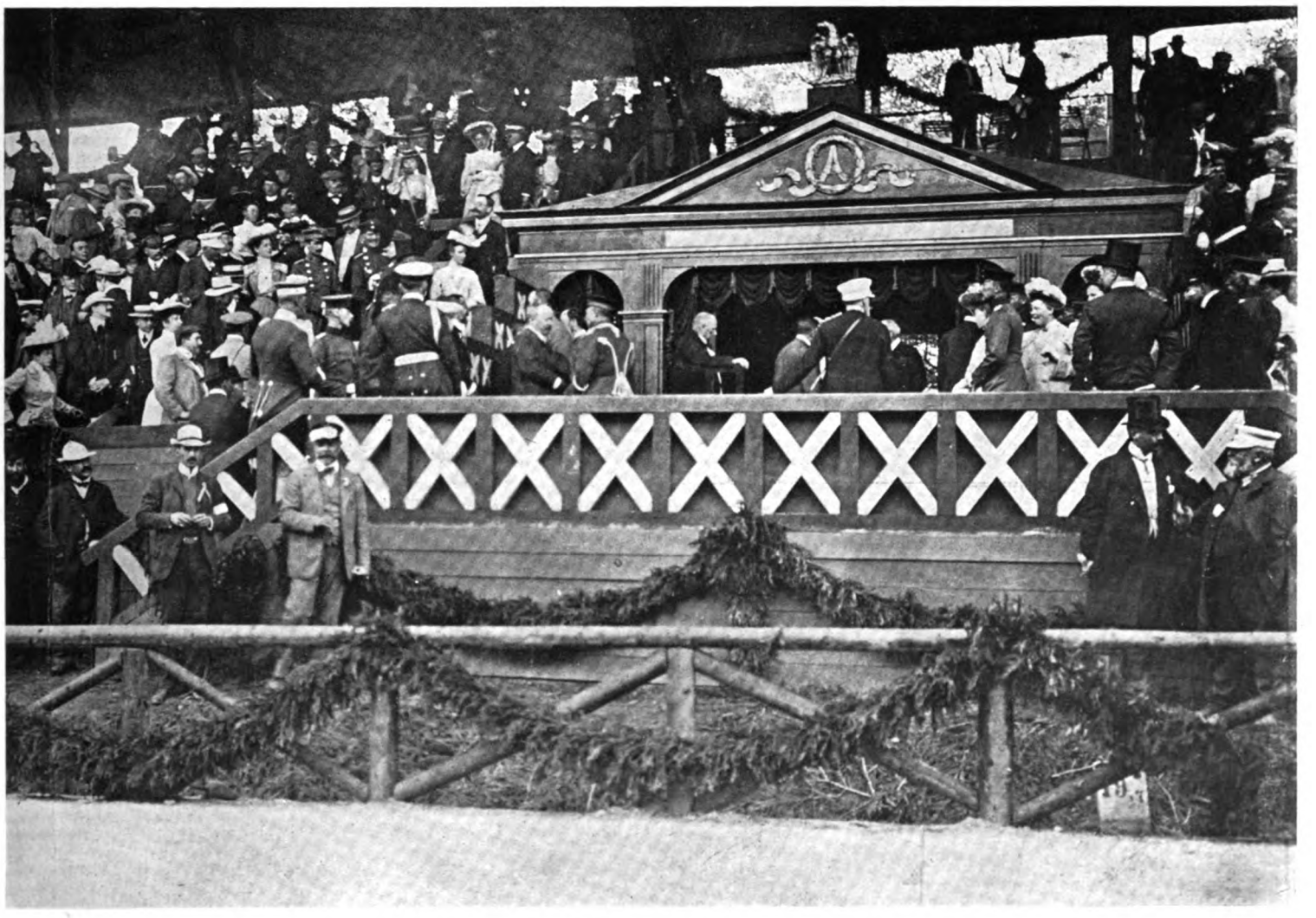


THERY COMPLETING THE FIRST ROUND OF THE COURSE

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JARROTT ROUNDING ONE OF THE MANY CORNERS OF THE TAUNUS CIRCUIT



M. BRASIER RECEIVING THE CONGRATULATIONS OF THE GERMAN EMPEROR

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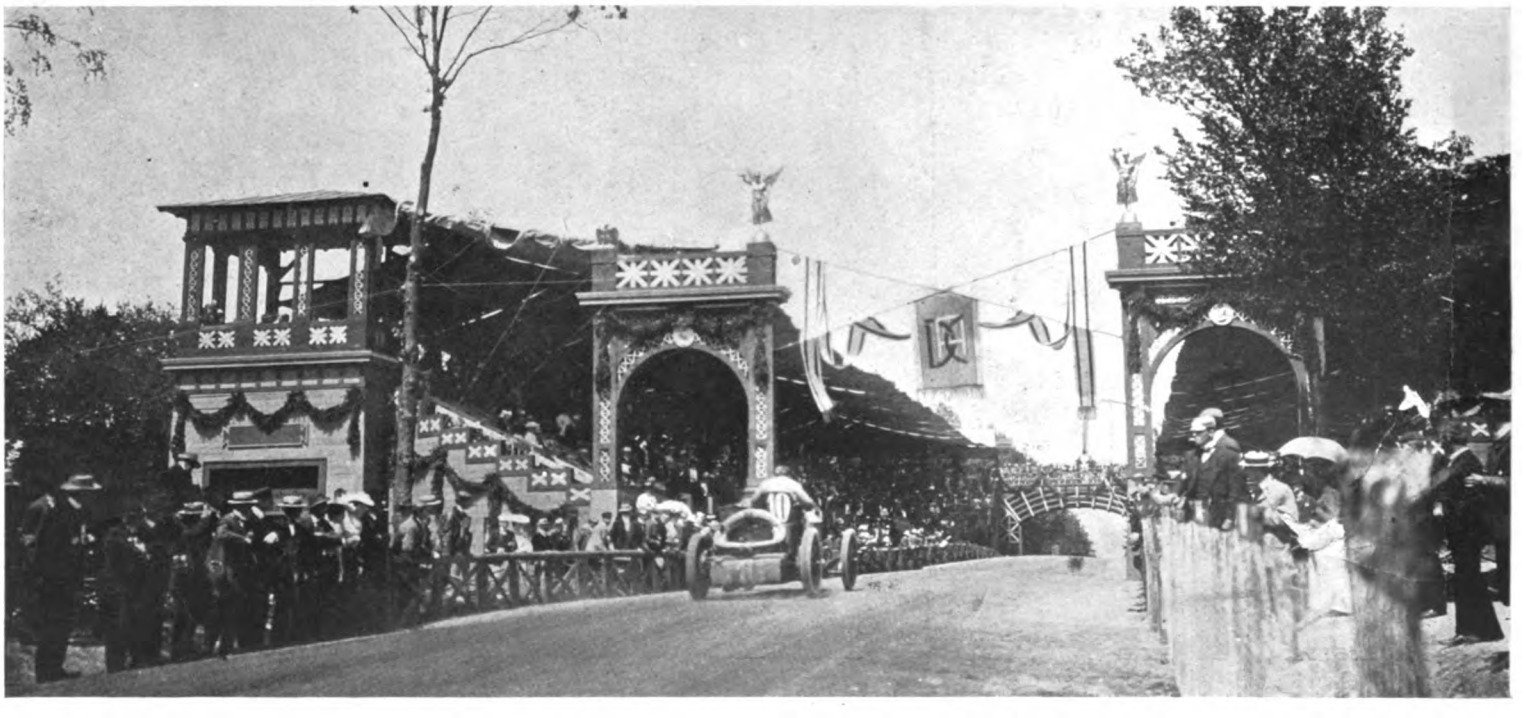
EDGE WAITING TO RECEIVE THE WORD FROM THE OFFICIAL STARTER



THE KAISER'S MOTOR CAR
(Wilhelm II Inside with White Cap)



LANCIA OF ITALY AND HIS FIAT



WERNER PASSING THE STARTING AND FINISHING POINT

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THE BATTLE OF THE MASTER FORCES

By Charles Quincy Turner

SYNOPSIS OF PRECEDING CHAPTERS.

While conversing in Paris, Tom Compton, Lucien Lancaster, and their friend, Oslaldistone, fall into a discussion concerning the practicability of aerial navigation. Lancaster finally wagers $1,000 with Compton that he can reach South Africa from Paris quicker by an airship than Compton can go the distance by motor car. Oslaldistone agrees to keep records of starting and leaving times at the principal points of the journey, and the two principals at once set about preparations for its accomplishment. Lancaster, while not known in aeronautical circles, and a subject of some mystery and gossip among Aereo Club members, is a trained engineer who has spent much time experimenting with flying machines at his home in the wild prairie country of Nebraska. His sister, Lavinia, who was responsible for his original interest in aerial navigation, worked with him, and for a number of years the two made many balloon ascensions and kept closely in touch with the master minds at work upon the great problem. Lancaster's "Man Friday," Ben, a "find" of Lavinia's, and who is an old-time sailor, and latterly a balloonist, is cabled to at once: "Bring over the *Ariel* by *La Champagne* to Havre."

Compton is as thoroughly up in motor cars as Lancaster is in flying machines. His first move after the conditions of the contest are settled is to select a route. He finally decides that the most feasible way is through Algeria, to Lake Chad, to Fashoda, to Bulawayo, and thence on to the Cape by way of British South Africa. Incidentally he runs across a graduate of the African slave trade, one Kismet, who is familiar with every inch of Africa, and retains his services. He also arranges to secure the assistance of Lebaudy, the "Emperor of the Sahara," and confers with the French Colonial Office and the officials of the South African Company. He has a special motor car, with a very wide tread, designed and built for the work, and has shipments of fuel, lubricants and other supplies arranged for delivery at different points. Extra tires are addressed: "Fashoda" and "Bulawayo." Another package, the contents of which arouse the curiosity of his friends, is consigned him in Paris by a well-known manufacturer of fire-fighting apparatus.

Meantime, Lancaster concerns himself with the problem of provisions. This settled, his next work is hastily to assemble the *Ariel*, brought over by the faithful Ben. A few trials are made, which whet rather than satisfy the curiosity of the Aereo Club members. Beyond the fact that the craft combines the balloon and aeroplane principles, and that it avoids the necessity of ballast, little is apparent. Lancaster decides that his course shall be to follow the westerly surface winds across the Atlantic until near the coast of South America, and then tack back in the upper air currents to South Africa. The start is made, Lavinia accompanying her brother, but first sending a rose to Compton. Compton proceed to Marseilles, and Lancaster, the winds proving favorable, makes the first stage of the flight, to the Azores, uneventfully. He determines his latitude and longitude through communication by wireless telegraphy with an Atlantic liner, and prepares to descend.



THE SQUARE IN PONTA DELGADA, FROM WHERE THE AERONAUTS ASCENDED

CHAPTER V.

Compton's journey through France was, of course, only commonplace. His troubles, if any, would begin with Tripoli, which he had chosen, rather than Algiers, for good reason. In the first place Kismet knew that country best, and, although he did not say so, he preferred to be free from too close attention of the French authorities. But what influenced Compton most was the fact that for two or three thousand years, and nobody knows how many more, Tripoli had been the seaport to which caravans from the South, as far as Timbuctoo on the Niger, and west as far as the Upper Soudan, had come and gone, and he argued, not unreasonably, that if the roads had been for several thousand years good enough for caravans carrying merchandise over the deserts, they must be good enough for a motor car, for camels cannot overcome much in the way of rough ground. Furthermore, these pioneers of the countries had, like the deer and the buffalo, found out the lines of least resistance, and had "got there" between and around such rivers as there might be, without having to cross any. They had, through the centuries, too, established little gathering places, and dug wells on the oases, and founded quite considerable towns at intervals of, to them, several days' march, at twenty miles a day; but at distances which he, in his motor car, could easily cover in a day. Hence, a thoroughfare and sustenance were assured.

His only trouble would be gasoline, and that he had arranged for. If by any chance it had not reached the points at which he ought to strike it, why, he would have to wait for it. His first need to take in a fresh supply would not occur until he struck Lake Chad. His course to Lake Chad was due south from Tripoli to Ghadames, thence to Ghat, thence to Aheer, where he would turn east over the route of the Salt Caravans, until he reached Konwar, from which he would go due south again to Kuka on Lake Chad.

There was no need to burden the motor car at the start with more than a couple of skins of water, in which it will keep cool the hottest day, and a small light tent for shade in the middle of the day. The mornings were cool for two hours after dawn, although it was mostly 130 degrees in the sun by midday.

The desert comes up to the walls of the city of Tripoli, and you pass at once on to an undulating plain of sand hills, loose stones, and long, dry grass, stretching away in one vast level to the foot of the Atlas Mountains. The desert track presented no difficulty whatever, and although several wells and tempting little camping grounds were passed, in which the natives had pitched their black camel hair tents, Compton did not stop until he had ascended to Yefrom, where, under the shade of an old black olive tree, coeval with the world, but yet was as vigorous as ever, he ate his first meal of dates. The toil up, with camels, necessitates night traveling, but there was nothing to preclude a motor car by day. The descent from the mountains is by a series of undulations, which dissolve at last into the immeasurable prairie of short, burnt herbage, with an occasional handful of graceful date trees thrown in. The road from the mountains southward he found to be very good, well kept, and broad enough for carriages. A day's journey, as they measure time, twenty miles in fact, from Ghadames, the road passes over a plain of thick salt, hard enough in some places to be quarried and used for building material; a singular use for rock salt.

Late in the afternoon the party passed through Ghadames' city gate, lined with benches whereon, in the old days, sat the elders, dispensing justice; and no bath was ever more welcome to dusty travelers than that which the city maintains from a perennial spring. Ghadames is quite a town, surrounded by date palm trees on the outside, and made shady by their presence in every garden inside.

Nine days is considered quite good time for a camel party to make the trip to Tripoli; it had been quite easy to make it with the motor car in one day.

Next morning they set out for Ghat, over another very good road, the Fezzen route, until they came to a gorge in a low range of limestone hills, up which they mounted to a plateau, and turned southward over a slightly undulating country of naked clay; as far as the eye could see a lifeless, treeless expense of desert. The clay surface again gave place to sand, and if its dunes had been of blown glass, they could not have been smoother. In the afternoon they saw, what is not at all infrequent here, several mirages, which, curiously enough, in this parched land, always represent purling, crystal streams, and lakes, and shady trees. Toward evening they met a caravan coming north, which they learned had been forty-five days on the road. This snail-like pace is not the fault of the road, but the need of forage for the camels. Motor cars don't eat grass, either growing or dead, thank goodness! and before nightfall the party was comfortably fixed within the gates of Ghat. Ghat is a junction town, where the travel north and south is crossed by that going east and west from Mourzak and eastward to Touat, and Compton enjoyed the babel of its crowded, shaded streets.

The third day in no sense differed from the second, and they reached Aheer, another and more important desert rendezvous, at which the Salt Caravans, the largest of the prairie trains, numbering often two thousand camels, turn sharp from the western trail and go north over the road already described.



THE APPROACH TO GHAT

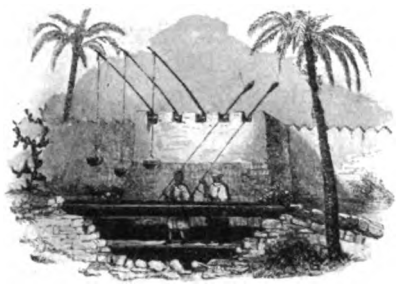
It was over the Salt Caravan trail that they left Aheer on the morning of the fourth day, facing the east until they arrived at Darkey-Konwar, where they swung due south again until the waters of Lake Chad came into view, and the welcome sight of the white walls of Kuka. In four days they had dropped from the 35th degree of north longitude to just below the 15th, keeping pretty close, the whole way, to the 15th degree of east latitude. As the crow flies this was 1,300 miles. Just one-half of their Sahara desert was over. The same distance due eastward would take them to Fashoda in Soudan on the upper White Nile, where they would strike the established authority of Egypt under British protectorate, and the intended line of

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the Cape to Cairo Railroad. They were now in the country over which Kismet had often traveled in his slave trade days.

Lake Chad is apparently the last remaining water of the primeval sea which once covered the whole Sahara. It has no outlet. It is the hollow basin into which drains, as to a common center, a network of small streams flowing from all directions, and ultimately into its thirsty maw. It never gives a drop out again. The sun and the sands are the finish of these streams.

By great good luck, and German mercantile thoroughness, the gasoline consignment had found its way up from the seacoast, and, as the tireless motor car requires no rest, they were off again on the second day after their arrival.



A WELL OF THE DESERT

The route now lay along the south shore of the lake, which is nearly a straight line, west to east, for a hundred miles, and thence followed the Bar-el-Ghazel until the hills of Fittre Lag had been skirted, and so along the course of the Batha River. This was a long, dry, dusty pull, and evening saw them camped out for the first time. Kismet had never enjoyed himself so much; the night seemed to enchant him, and late into it he strummed away at his zither, and told weird stories of the old slave trade days.

Early morning saw them on the track again, and before noon they had made Abesher. Kismet's good spirits of the night before were still evident. Abesher was one of his old camping stations; that was why he had got out the zither. In and out, and round about the town he gadded, and when night gathered, and with it many of his old cronies, they had high jinks. Kismet fairly bewildered them again with his old tricks, and one new one. It seems that while he was in Paris, he had bought a conjurer's pistol, one of those contrivances loaded in the old-fashioned way, with powder from a horn, then a wad of paper thrust down with a ramrod, then a bullet dropped in and rammed home; during which operation it is picked up by the hollow ramrod, and drawn out of the pistol, leaving nothing but the powder, and a little harmless paper. At the climax of his legerdemain Kismet had defied any of his audience to shoot him with his pistol, declaring that, no matter how true their aim, he would catch the bullet in his hand. At length his challenge was accepted, off went the pistol and Kismet triumphantly caught the bullet in his hand, where of course it had been palmed all the time. Kismet's stock went up, and his wonderful power will travel over the caravan routes for years, may be for generations.

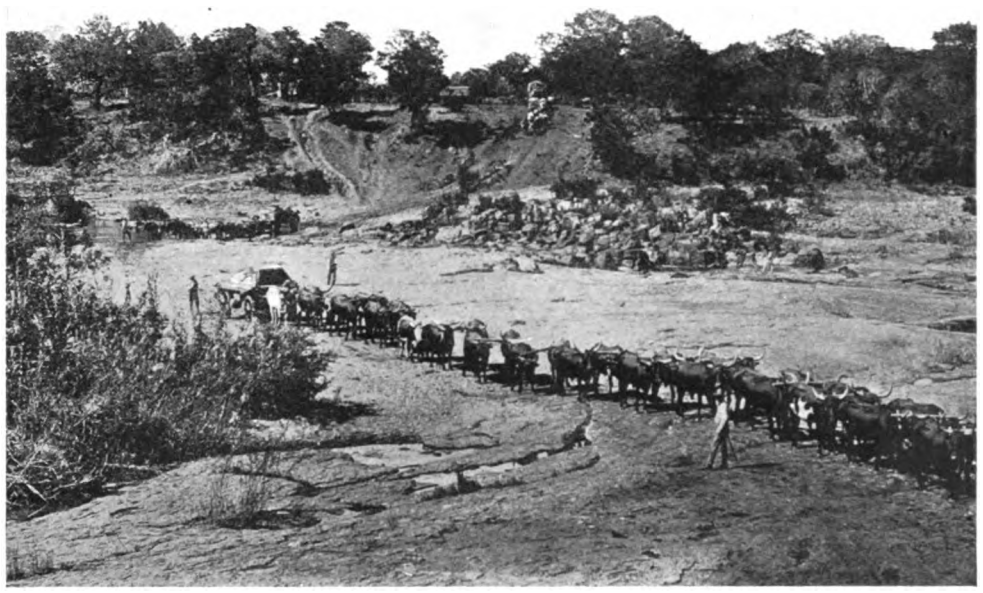


Photo by Dr. James Johnston. Copyright by Fleming H. Revell Co.

WHAT THE MOTOR CAR WILL REPLACE

The half day's rest at Abesher was a welcome one. Prefacing a somewhat shorter distance to the next stopping place, El Fashu, but a rather more trying one, for it included the negotiation of the Dar Foor range of hills, where, it was reported, and the report was true, that there was apt to be trouble with blown sand. The winds of the desert carry it away in clouds at times, and sometimes it rises in cones and whirls like a true Western cyclone, without the accompanying wind; but in the hills the sands cut through the gullies in blinding clouds of no great height, but as piercing as the French mistral. This necessitated a pull up at Kobo, a caravansari at the eastern end of the hills, before the remainder of the day's work could be got through; and three more thankful and grimier men never washed themselves in El Fasher. It was in this stretch that more skeletons of the camel were passed than they had yet seen, and, if a too curious search had been made, it would have been discovered that some of the bones would have been pronounced human. That so very few camel bones do dot the desert, arises from a curious habit of that voracious creature. He will eat, with avidity, the dried, white, crumbling bones of his dead brother. The cannibal!



A MID-DAY REST AT A SAHARA OASIS

At El Fasher a council of war was held with Kismet; he wanted to go on to El Obeid, which could be reached, without much question, the next day, but then that meant, subsequently, having to cross the river Khor-abou-Hable, a tributary of the Nile, which has the habit at this time of the year of overflowing its bank and swamping the adjacent country for hundreds of miles of its length, and that might put the route out of the question, in which case the river would have to be skirted to its course. The alternative was to strike southeast from El Fasher, and make a bee line for Fashoda, above the source of the troublesome tributary. This meant carrying provisions and water for two days, and sleeping out one night; but then, neither of these presented any difficulties, and really roughing it would be a bit of a change. Compton so decided, and it was done. On the evening of the second day out from El Fasher the waters of both the Bar-el-arab and the White Nile gladdened the eyes of the pilgrims of the dust: the one coming in from the west, out of the desert they had been traveling at a higher parallel, and the other streaming off to the north to Khartoum, and to end its journey in the far distant Mediterranean.

CHAPTER VI.

The eleven islands which form the Azores group had only a scientific interest for Lancaster. They enabled him to make his experiments on his long cherished theory that, at a certain altitude, never as yet determined, there existed a perpetual air current, corresponding to the revolution of the earth only, and varying from westward to northwest or southwest as the earth turned in its half yearly motion, to the north or south of the strict Equator. For the purpose of determining this, he made a number of ascents, on each one of which he sent out parachutes, suitably balanced, some to ascend and some to descend, all obeying the impulse of the prevailing current in the zones through which they passed. Those freed nearest the earth he found, without exception, passed away to the westward, down the trade winds. Those in the strata above that were erratic. He supplemented the parachutes by breaking bags of light, impalpable dust at various heights, where it streamed out into miniature clouds. It was not until after twelve days of unremitting observation with the most powerful telescopes, and comparisons with the aneroid for height, that he became satisfied of the accuracy of his theory. He had discovered conditions as certain as the tides, but, unlike them, stable and not oscillating. The most difficult part of the problem was to determine the velocity of the current, for of course when in it no force was felt. This was ultimately determined by taking several time spins on the lower east trade wind, the velocity of which was known, then rising rapidly into the west wind, and returning to the point from which the start had been made. By the aid of observers on various islands of the scattered group, the velocity was finally settled.

With all the zeal of a Columbus he then threw himself into the proof to the world of his discovery. All doubt was past. It was all now as simple as the multiplication table—so many miles an hour; so many miles from the Azores to the Cape of Good Hope; so much pull of the steering apparatus for southing. Why, it was as easy as a schoolboy working out the parallelogram of forces in a diagram on the blackboard. He would be at his journey's end in seven days, without question.

Absolutely convinced of this, and fortified by Ben's equal surety, he and his sister and Ben swung into the car of the balloon from the public square

(CONTINUED ON PAGE 42.)

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The Risks That Men Run



By A. G. Batchelder

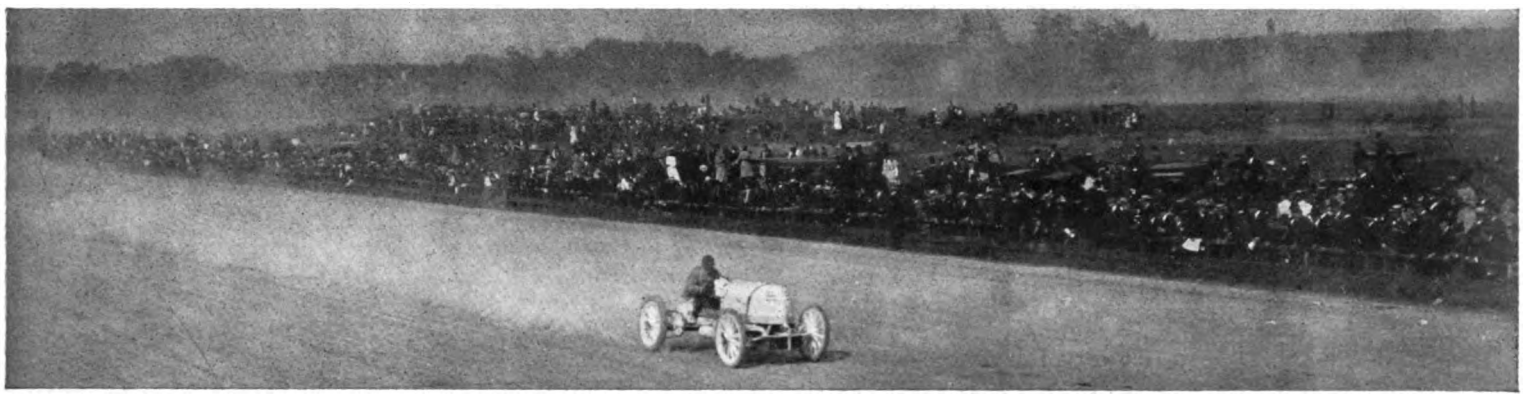
It's an effective yet dangerous microbe, one that quickly finds responsive encouragement in many motorists, this mania for the limit speed. A sure cure for it does not exist until some day the motor-mad has a particularly close call which brings him to his senses and he comprehends the risks that he has run. Not a few have had their awakening in the Great Beyond, though the lesson has been inadequately learned even by their intimates.

There is the acme of elation in an unhampered swirl at less than a mile-a-minute over a wide, ocean-washed speedway of sand, and in the open country a broad highway is a temptation that can hardly be resisted when what is erroneously put down as an infraction of the law brings harm to no other users of the road.

But the motorist who pilots a high-powered monster around mile tracks, through clouds of impenetrable dust, and does it for the mere love of the thing, that one has the disease in such form that the cure requires a foreible application of medicine takes some extra heed of children and those who imbibe too freely. It is suspected that mad motorists have been added to the category.

Round and round the dust-beclouded circle the heedless participants flew—once a tire came off, and still the desire to win urged on the speed victim; a wheel parted company from another vehicle, and in some miraculous manner the occupant escaped injury; twice the veil of agitated and dust-filled atmosphere caused two drivers to lose the location of the inner rail, and again kind Providence intervened. True it was that the day concluded without any fatality, but the thousands breathed thankfully at an official decree which terminated the dangerous sport that had for its ending an unfinished race.

William Wallace, chairman of the racing committee of the club which promoted the meet; H. L. Bowden, of Waltham, an Ormond-Daytona performer of prominence; Louis R. Ross, another Florida notable; Paul Sartori, the paid chauffeur of



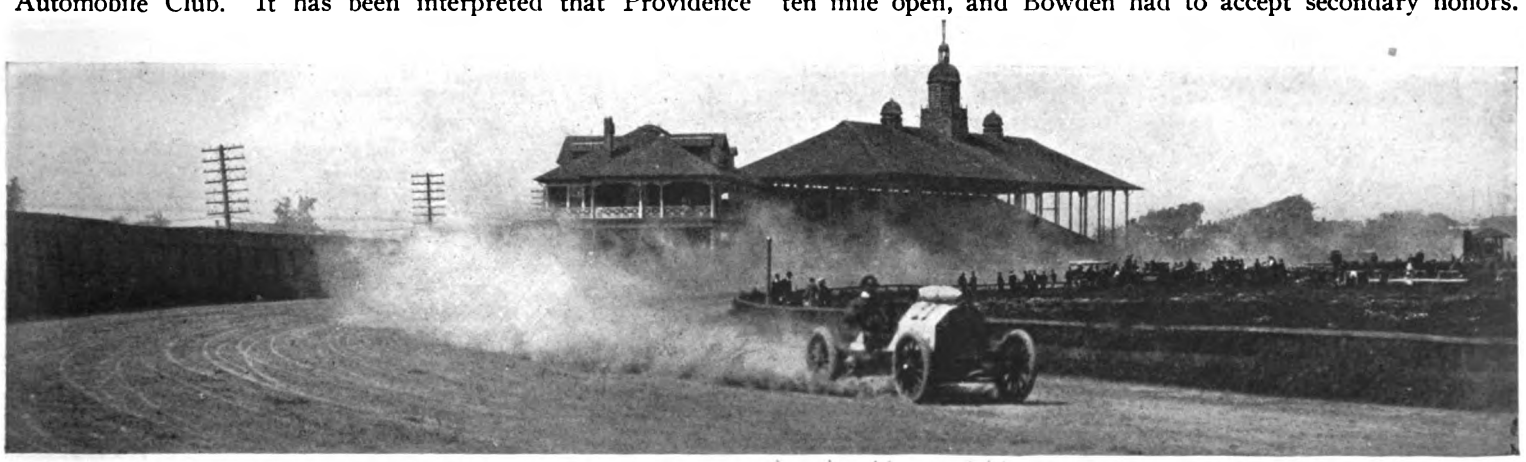
H. C. BOWDEN COMING DOWN THE STRAIGHT IN HIS 60-HORSEPOWER MERCEDES, WINNING THE CUP RACE

by others, for the victim himself is deaf to entreaty. The paid drivers of the juggernauts—which nowadays combine speed with weight—will now and then pause in their astonishing ground-skimming, but the simon-pure enthusiast frequently loses all semblance of sanity in his space-devouring pursuit.

Mayhaps my nerve has lost its keenness because of the Fournier incident at a blind Long Island crossing, when a wildcat locomotive made kindling wood of our motor car and sent three of us to the hospital for extensive repairs; though since then I've had entertaining rides with Winton, Schmidt, and Oldfield; plunged through White Mountains country after dark with Whipple and Fosdick, and also climbed to the summit of Mount Washington with Nestman in a trip that supplied a few thrills. But nothing has ever impressed me to the extent of that afternoon of crazy competition seen June 11 at the Readville track on the occasion of the postponed meet of the Massachusetts Automobile Club. It has been interpreted that Providence Alfred Gwynne Vanderbilt; and Frank Durbin, another steam advocate: these five proved the most daring—or foolhardy, to be more correct—though lesser horsepower may have kept Nestman, Winchester, Morrison, Riker, and several others from the thickest of the fray. Morrison in a stock Peerless won the really sensible race of the day from the makers' point of view, the event being for touring cars.

Wallace is inclined to take some stock in fatalism, and he prepared for the game by additional thousands to his life insurance. His racing craft bore the repelling cognomen of "Black Death," and it was the car in the driving of which in the frightful Paris-Madrid of 1903 Marcel Renault lost his life. Wallace's style is spectacular, but his courage is unquestioned.

Sartori, the paid contestant, who drives cars on the road or track because he earns his living that way, excelled in the ten mile open, and Bowden had to accept secondary honors.



PAUL SARTORI DRIVER OF THE ALFRED G. VANDERBILT 60-HORSEPOWER MERCEDES

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AT THE READVILLE MEET THE DUST CLOUDS WERE SO THICK THAT AT TIMES THE CONTESTANTS WERE PL

But the great desire to win the Herald cup caused the Walthamite to persist in his heat despite the loss of a tire, and in the final he jumped to the fore and subjected Sartori to such a meal of dust that the hired Frenchman of the Vanderbilts "chucked" it and fell to the rear and became no longer a danger to the determined Bowden.

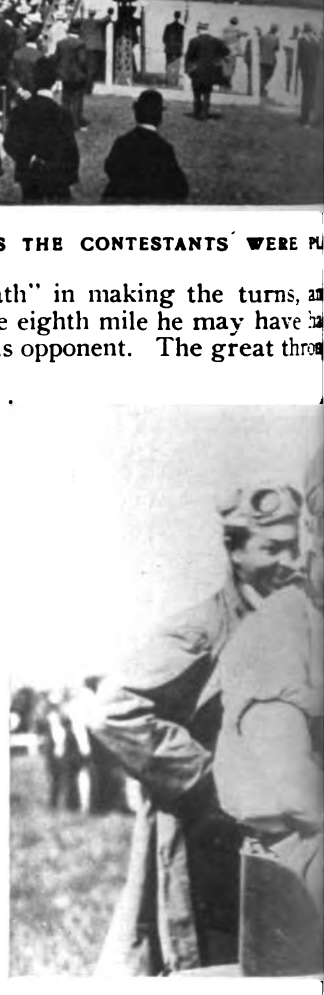
In the meantime Wallace had been making a good score of wins, and he and Ross had one particularly fierce set-to in the thick vista.

Inevitably the struggle of the tourney brought together the race-surcharged pair—two men of means who seek the risks through a fever of acute motorism. Both wanted to win, each had friends galore among the throng, and the presence of those nearest and dearest added fuel to the desire. Referee Pardington wisely decreed that the special match should be of the pursuit sort, one starting at the wire and the other on the backstretch. Some repairing to the Bowden Mercedes delayed the clash, but only served to whet the appetite of the unthinking and increase the nervousness of the apprehensive.

Saturated with dust, dirty faced, sleeves rolled up, and the big soiled "No. 32" across his front, Wallace, the motor-mad enthusiast, impatiently waited the mechanical attention which was being given to the "White Ghost" of his opponent far over on the backstretch. It was apparent to the already wrought-up spectators that the stakes of the day were finally to be played for, and in the risks that were to be run there was a painful uncertainty in which possibly life itself was being wagered. The low built, black-hooded craft throbbed feverishly to begin the pursuit of its ghostly rival. Finally, all was in readiness; the pistol shot echoed, and the race was on. Bowden gained in the first mile, and added a few yards more during the next half circuit of the track. Then Wallace gradually regained that which he had lost, and for several miles the advantage was so meagre as to prevent accurate measuring, except that when he arrived at the half-mile pole on the backstretch at nearly the same instant that the other flashed under the wire. The dust had become so dense that the whole track was covered with a haze of swirling dirt. Every half minute at the head of the straight there emerged a snorting monster, which rushed past the grandstand with a human being clinging to it who looked like a spirit from another world. It disappeared in an inkling at the lower turn, and then the fearful onlookers waited the coming of the other craft and its equally reckless pilot. It was a most intense and determined rivalry, and one that soon resolved itself into a question as to which would take the greater chances. Wallace lessened not the power of the "Black Death" in making the turns, a yard by yard he forged ahead until in the eighth mile he may have h a couple of hundred yards the better of his opponent. The great thro was awed into silence by the dangerous and unusual spectacle that was taking place. Bowden shot out of the cloud at the upper turn, but the straining eyes caught no glimpse of Wallace a half minute later. The expected had happened, imagined the many, and this opinion became general when the "bleacherites" and "rail-birds" started a rush to the upper turn. The "Black Death" had skidded, turned completely around, and, wonderful, indeed, it had not capsized, as it had done in the frightful Paris-Madrid. Bowden was flagged, and the people were told that Wallace was uninjured. How they cheered when the announcement conveyed the further information that the racing was done for the day! All had had enough, and the motoring public was unanimously willing to go home and recover from the effects of the strenuous competition that had punctuated the entire afternoon.



NESTMAN OF THE STEVENS-DURYEA



WALLACE AT THE W

The history of track racing has nearly been written, as far as the motor vehicle is concerned, and its further continuance is a question t should be seriously debated by the racing board of the associat which governs the sport. One source of danger which might be co



THE BIG STAND AND BLEA

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IBLE ONLY IN THE HOMESTRETCH

frightful dust common to the average horse track. As the horse he circular course to itself for all the year, with the exception of days, it is hardly probable that the track owners will injure their properties in such manner as to destroy the footing for the regular performers. There should be specially constructed motor tracks of nothing less than two miles, well banked, and practically dustless. Otherwise, the racing should be confined to stretches of beach, with perhaps an occasional long distance event over a highway that closely approaches a park boulevard, for these are the kind of roads on which the Europeans have their big races. In France and Germany, and even in Britain, the government lends aid in guarding the course with soldiery and contributing much other assistance. That era has not yet arrived in this country, but its coming is close at hand. Competition in anything attracts the attention and commands the interest of the public, and though a man may not care to drive a car in contest, he often desires to own one which has demonstrated speed, proven endurance, or excelled in hill-climbing. Whatever finds its nto print concerning motoring in any form—for even that which agonistic causes the defenders to come forward—contributes to apparent that the industry has before it possibilities scarcely com-



E "BLACK DEATH"

prehended now by its most ardent advocates. All competition where the hazards are not too great should be encouraged, but the impression that motor track racing does not belong in this category is approaching a vast degree of unanimity.

Twice last year the high-powered craft broke through the fence at track race meets, and several innocent spectators were killed. Rounding turns at tremendous speed, mile after mile, the strain on tires is something tremendous, and it is no wonder that air-filled rubber yields under the unusual demands. Following the fatalities, onlookers were moved away from the rail, back to a safe distance. But the lesson was soon forgotten, and this season at several meets the people have resumed the vantage ground alongside the fence. Any day there may come a repetition of what happened at Detroit, and even similar to that on Staten Island, unless the managers of track and road events insist that the spectators observe the contests from points unthreatened by danger.



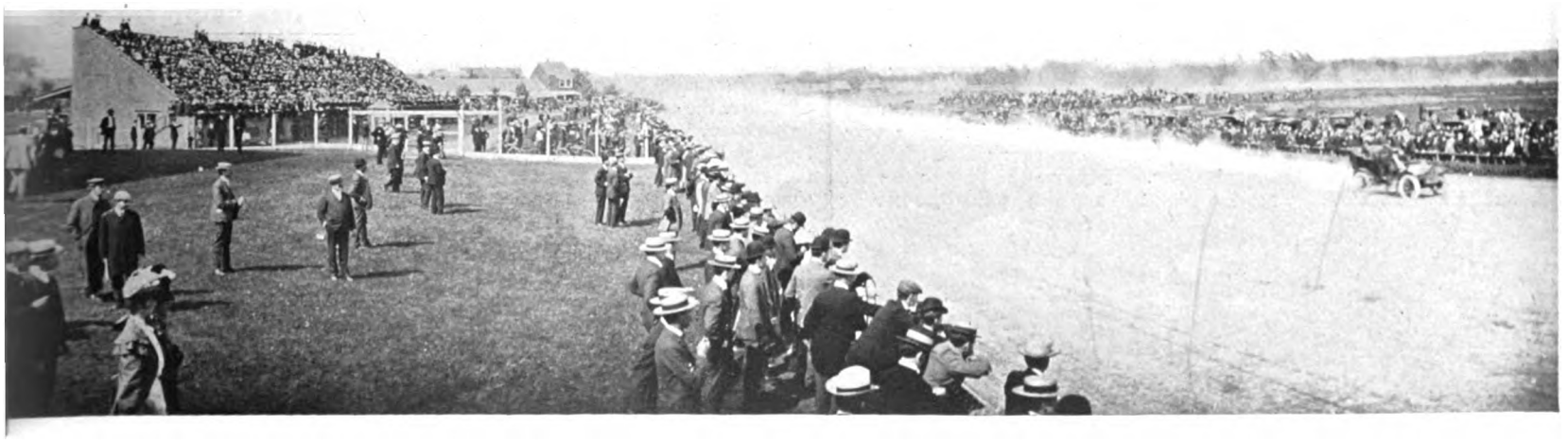
SARTORI, ONCE OF FRANCE

There are certain to be victims in any sport wherein the element of danger exists, but every safeguard that can be applied should be utilized. Even with every precaution taken there will remain the probability of accident in track competition, for if there does come the contest in which two or more machines are nearly equal in horsepower, the question of winning inevitably resolves itself into which driver will accept the limit of risk in employing to the full all of the energy contained in his surface flying machine. Temporarily, like one crazed, the man will run risks that afterwards will cause him to doubt his own sanity.

Why not make impossible this form of doubtful sport by refusing to grant sanctions for speeding on mile tracks? There will be those who will try their luck just as long as the governing body permits the holding of these races, and in this prohibition there may be the duty wherein man may become his brother's keeper. One State now has a law, and in another there is not likely to be any track competition. To the thinking who saw the Boston meet, the handwriting on the wall is so plainly discernible that it can be read without the necessity of any eye-straining. Philadelphia did not excite the same apprehension because of small fields and uneven racing. But at Readville the hieroglyphics were big and easily translatable.

It is better to err on the side of caution than to leave down the bars and invite the risks that all know are visible to the most unobserving.

It may be this quantity of uncertainty that attracts the thousands, but that is no reason why such natures should be gratified with motor amusement of the riskiest sort.



LLED TO OVERFLOWING—A. C. MORRISON WINNING THE TOURINC CAR CLASS IN A PEERLESS

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LITTLE LESSONS FOR LEARNING LAYMEN

By Victor R. Lougheed

Lesson No. 2.—RUNNING GEARS

The running gear of an ordinary motor vehicle is an assemblage of wheels, tires, axles, springs, frames, steering gears, brakes, etc. Each of these various elements has its particular functions, and, though an operative machine doubtless might be built without some of them, all are essential to a maximum of comfort and utility.

The running gear of a typical motor vehicle is shown in plan and section in Fig. 1. In this: A, B, C, and D are the *wheels;* E, F, G, and H are the *tires;* I is the *frame;* J and K are the *axles;* L. M. N, and O are the *springs;* P, Q, R, S, T, and U show the *steering gear;* and V, W, X, X, Y, Y, and Z the *brakes.* That these various elements of a running gear may be more easily picked out by the novice, each is shown separately in a smaller illustration.

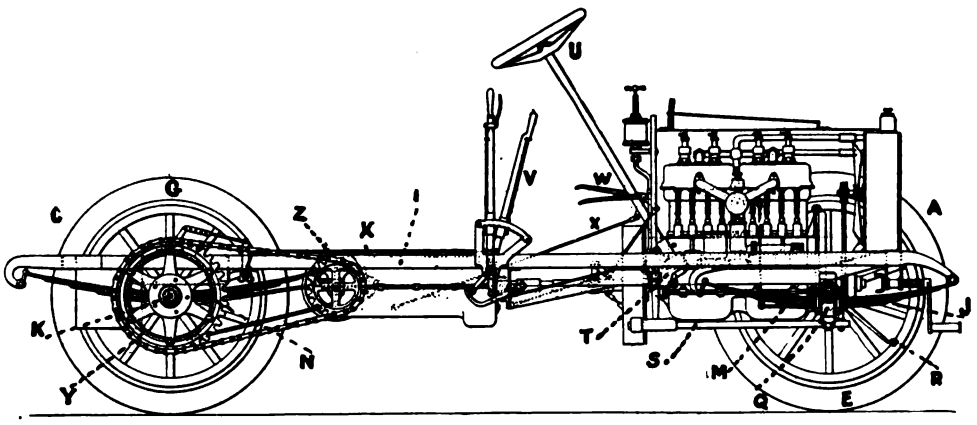
Motor vehicles may be roughly classified according to the number of wheels they possess, there being unicycles, bicycles, tricycles, ordinary four-wheeled vehicles, and occasional instances of six-wheel vehicles. The four-wheeled vehicle is established as the most satisfactory and suitable for ordinary requirements, though bicycles and tricycles, especially the former, are widely used. Unicycles and six-wheeled vehicles are so uncommon as to be classified as "freaks."

Wheels of motor vehicles have three principal functions—the support of the machine, its propulsion, and its steering. The most approved arrangement calls for two rear wheels, through which the driving is effected, and two front wheels, through which the steering is controlled. In Figs. 1 and 2, which illustrate a vehicle of this type, A, B, C, and D are the wheels, A and B effecting the steering, and C and D the driving. Motor-vehicle wheels are either of the spoke or disk patterns. Wheels with wood spokes are the most used, a *wood artillery wheel* — the commonest type—be- illustrated in Fig. 3. Another common wood wheel, Fig. 4, has its spokes "staggered," but is more used for horse-drawn vehicles than for automobiles. The advantages of wood wheels are their simple repair, the great strength that they oppose to side thrusts, the ease of keeping them clean, and their substantial appearance. Their disadvantages are their weight and the possibility of warping under the influence of rain and sun. Wheels with *steel spokes,* in outward appearance almost identical with wood wheels, but built of steel tubing brazed together, find a large market. They are strong and light and neat, and are highly approved in many quarters. *Wire wheels,* such as are illustrated in Fig. 5, are very common on motor cycles, tricycles, etc. They are the lightest wheels made, but are somewhat easily buckled under a severe side thrust, and are exceedingly difficult to keep clean. Their flimsy appearance also is objected to. A *disk wheel* is illustrated in Fig. 6. Wheels of this form are made of two dished steel disks, and are enormously strong in the direction of every stress to which they can be subjected. They also are very inexpensive and simple to construct, and are easy to clean and maintain. It is likely that the future will see them come into general use.



Fig. 6.—Disk Wheel

Tires for motor vehicles, E, F, G, and H, Figs. 1 and 7, constitute a marked departure from the practice established for animal-drawn and rail-carried vehicles. The essential point of difference between pneumatic or similar tires and their predecessors is that the former present soft surfaces to the road, thus constantly leveling the onward course of the vehicle, irrespective of small road inequalities, owing to the deformability of the flexible and highly elastic tread. The action of a tire of this sort, as compared to that of a hard tire, is shown in Fig. 8, in which *a* is an uneven road surface, *b* a dotted line indicating the rise and fall of a wheel with a hard tire, and *c* a line indicating the rise and fall of a wheel with a pneumatic tire. Another advantage of the soft tire is the great contact surface it presents to the road, insuring ample adherence for traction, and reducing the weight carried upon any one point. A soft tire also relieves a vehicle of road shocks and jars, not merely by its cushioning action, but because small irregularities simply dent the tire tread, without forcing the vehicle to rise over them. The most-used type of soft tire is the *pneumatic,* which consists of a comparatively thin, air-tight envelope, containing air pumped into it to a pressure from 60 to 100 pounds to the square inch. A section of a typical pneumatic tire is shown in Fig. 9, in which *a* is the rubber *outer casing,* strengthened by the layers of cotton fabric *b,* and held in place by its thickened edges, *c* and *d,* which engage with the hooked-over edges, *e* and *f,* of the wheel rim. *G* is a weak, but perfectly air-tight *inner tube* which serves merely to retain the air, the outer casing taking the pressure and the wear of the road. A pneumatic tire, because of its thinness, is easily punctured by nails, glass, etc. To make it proof against puncture, the tread would have to be thickened or otherwise made hard and inelastic, which would defeat the ends the tire is designed to attain, the perfect



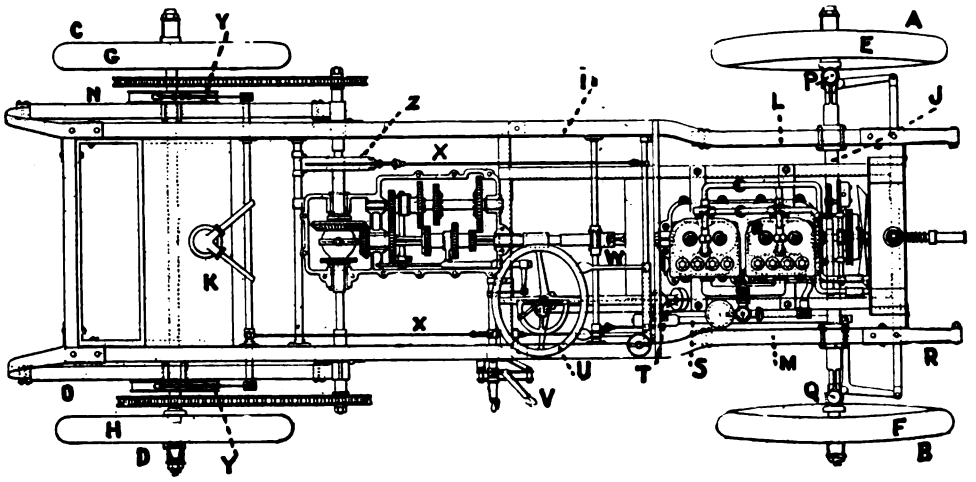


Fig. 1.—Side and Plan Views of the Mechanism of a Typical Touring Car

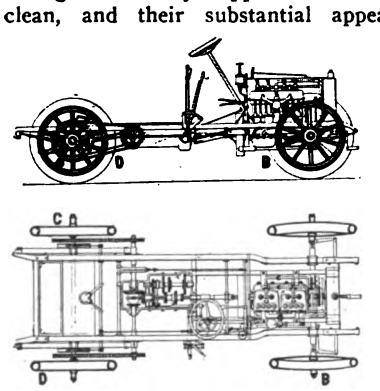


Fig. 2.—Wheels

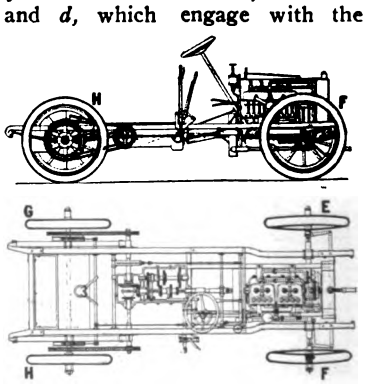


Fig. 7.—Tires

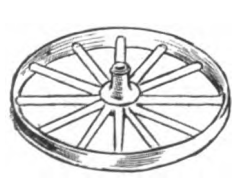


Fig. 3.—Artillery Spokes

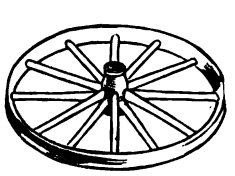


Fig. 4.—Staggered Spokes



Fig. 5.—Wire Spokes

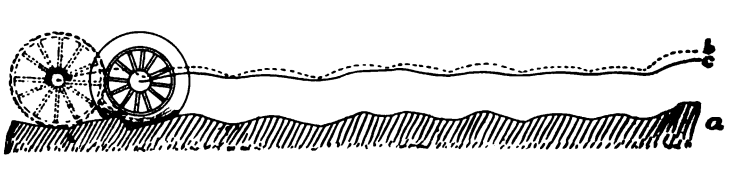
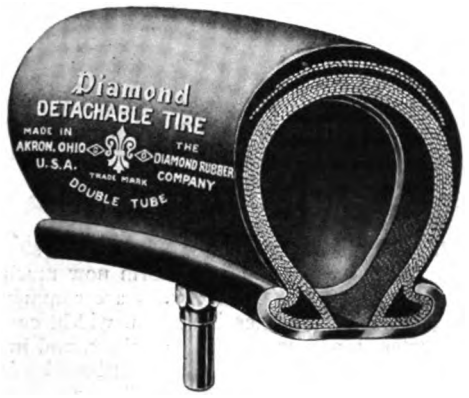


Fig. 8.—Action of Hard and Soft Tires on Uneven Road

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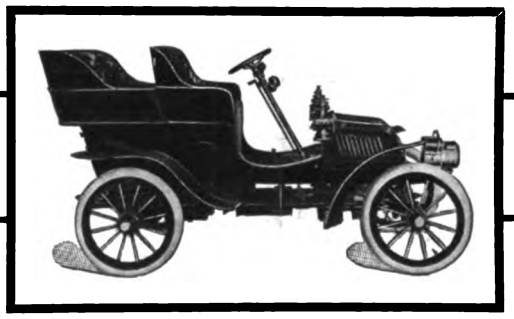
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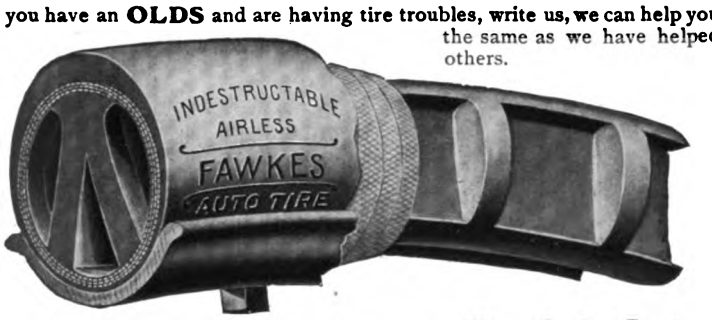
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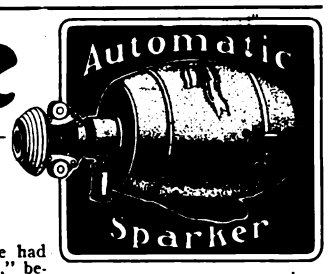


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elasticity of compressed air being fully available only when the tire casing is very thin and flexible. Therefore tire makers endeavor to simplify the repair of punctures, rather than to guard against their occurrence.

Frames of motor vehicles, I, Figs. 1 and 10, carry the body and power plant, and are borne upon the wheels through the medium of springs and axles. Frames are for the purpose of holding the different parts of a motor vehicle together and differ widely in form and construction. The design of a frame is largely determined by the number of wheels—that is, by the points of support available—and by the work for which the vehicle is intended. The frame shown at I is a *pressed-steel frame* of a form now much used for touring cars, but other frames are common, differing from one another in length, width, construction, material, arrangement of members, and in many other particulars. Besides pressed-steel frames, formed out of sheet steel one-tenth or one-eighth of an inch thick, there are several other types. Some frames are made of *wood,* usually ash or oak, often reinforced with steel. Others are made of *tubular steel,* similar to that universally employed in bicycle construction. Another pattern is built up of *angle* or *channel steel,* such as forms part of the stock product of every rolling mill.



Fig 9.—Tire

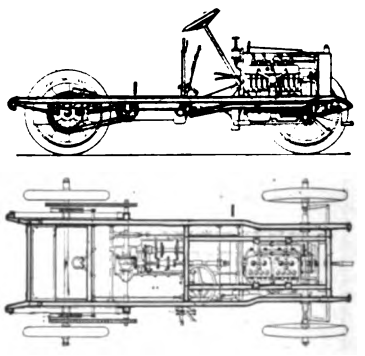


Fig. 10.—Frame

Axles of motor vehicles, J and K, Figs. 1 and 11, carry the wheels and usually are attached to the frame by springs. Axles are usually made of steel, and may rotate with the wheels or the wheels may rotate on them. *Front axles,* J, rarely rotate, while *rear axles* may or may not rotate. The rear axle shown at K is non-rotating, the wheels C and D rotating upon it. Rotating axles are termed *live* axles, and are invariably solid round rods or hollow tubes. Non-rotating or dead axles may be O-[]- or I-shaped in cross-section, the latter form being much advocated.

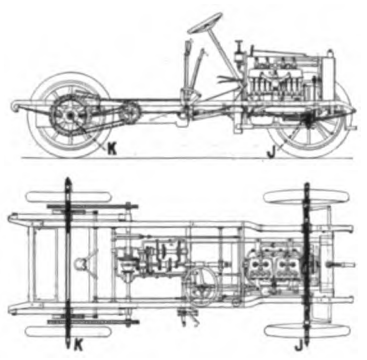


Fig. 11.—Axles

Springs for motor vehicles, L, M, N, and O, Figs. 1 and 12, are almost universally built up of a number of flat, curved steel plates, assembled in such a manner that they reinforce one another, and thus are very strong, while at the same time allowing great flexibility and elasticity. The springs shown at L, M, N and O are of the *semi-elliptic* form. Other common forms are the *full elliptic,* the *quarter elliptic,* the *double half elliptic* or *X spring,* and the *side spring,* shown at *a, b, c,* and *d,* respectively, in Fig. 13.

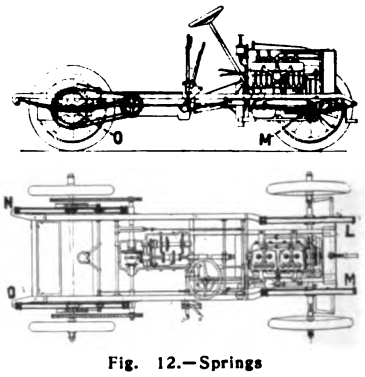


Fig. 12.—Springs

Steering Gears, P, Q, R, S, T, and U, Figs. 1 and 14, are devices for altering the angles of one or more of the wheels of a vehicle, for the purpose of changing its direction. The steering of animal-drawn vehicles is effected by a pivoting of the front axle at its centre, but this form of steering is inapplicable to motor vehicles, as its use involves forcing the steering wheels backward or forward for some distance over the ground, a task that requires considerable

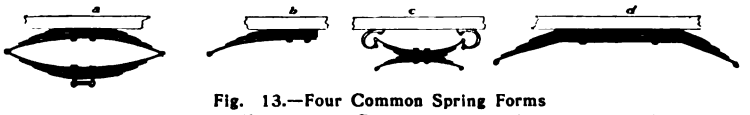


Fig. 13.—Four Common Spring Forms

effort for its accomplishment. Consequently, the system shown at P, Q, R, S, T and U, which involves a simple pivoting of the steering wheels at P and Q over their points of support, is by far the easiest to manipulate. Besides the *steering pivots,* P and Q, a steering gear involves a *drag link* R, to make both wheels work in unison; and a *connecting rod,* S, to connect the wheels with the controlling device, which may be either a *steering wheel* U or a *lever.* Steering gears are classified as *reversible* or *irreversible,* according to whether or not a thrust on the side of the road wheels themselves will turn them away from the angle at which they

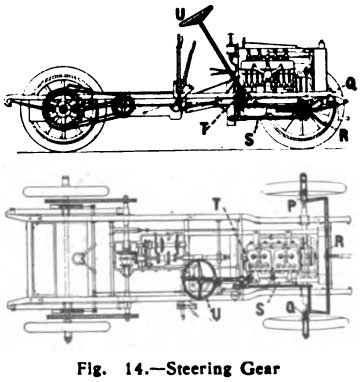


Fig. 14.—Steering Gear

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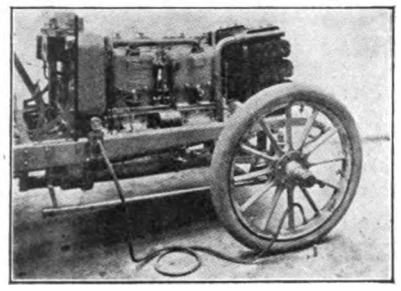
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may be set. If so, the steering is reversible, and will communicate constant shocks to the hand of the operator and will at all times require to be held tightly in position. Irreversible steering cannot be deranged by road shocks, the wheels remaining set in a given position until moved by the hand of an operator. Irreversibility is generally effected by a *worm-and-segment* gear, or its equivalent, located as shown at T.

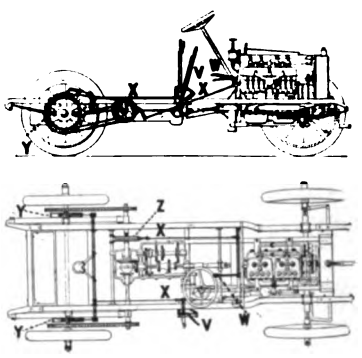


Fig. 15.—Brakes

Brakes for a motor vehicle provide a ready means of retarding or stopping its motion at any moment. Brakes are commonly located on the driving-wheel hubs, as at Y Y, Figs. 1 and 15, and at one or more other points about the vehicle, as on the *countershaft* at Z, Figs. 1 and 15. Motor-vehicle brakes are rarely applied to tires, as is common practice with animal-drawn vehicles, because soft tires will not stand the wear. Brakes may be either *expanding* or *constricting*, according to whether a *brake shoe* is forced outward against the inner surface of a metal ring or a *band* is drawn tight around the outside of a *metal drum*. Brakes are controlled either by a *brake lever*, as at V, or by a *pedal*, as at W. A wire or cord, X X, connects the controlling means with the brake proper.

The next lesson will treat of "Gasoline Engines."

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The airless tire is coming more and more into vogue, appealing to motorists who have experienced trouble with the perhaps more resilient but certainly more delicate pneumatic. The airless tire, which is a rubber-and-fabric tire similar to the pneumatic, but unlike it in that a peculiar interior truss of highly elastic rubber avoids all necessity for inflation, is declared by users to afford excellent service, even on rough roads. Its immunity from puncture and freedom from similar annoyances certainly should commend it.

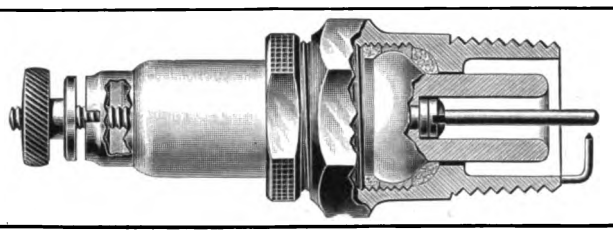
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VOLCAN
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Are Your Batteries So Stamped?
All Leading Makers Use Them

The Motorists' Summer Capital

(Continued from page 24.)

Saratoga to keep time from hanging heavily on the hands of the most energetic pleasure seeker for months at a time.

More and more every year, too, Saratoga becomes a center from which other superb points of interest north and east can be comfortably and conveniently reached. One may come up from New York by train in less than half a day, or by road in a day and a half. Or one may make a circuit of the nearer Lake George country—Fort Edward, Glens Falls, Caldwell—and return between morning and evening of a summer day. Bennington and Rutland, in neighboring Vermont, are almost equally near, and as easily accessible. The automobile temporarily left behind, the railroad will carry one in half a day into the eastern Adirondacks or to Lake Champlain.

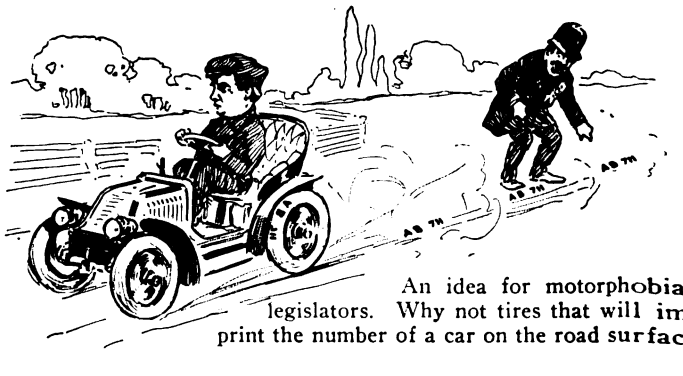
Newport has long since become the summer home of the ultra-fashionable, while Long Branch and Asbury Park, like the nearer resorts of Long Island, are practically suburbs of New York, peopled largely by those who attend to their business even while they pretend to be summering. But Saratoga is a summer capital, far enough away from Manhattan to deprive you for the time being of your business; and it gives you an opportunity to bring your motor car along. There is a subtle charm about its very atmosphere that none can fail to detect, and few are able to resist. It is the resort of the energetic man of business, and to an unusual degree cosmopolitan. That it is not merely a Vanity Fair, however, is attested by the important meetings and conventions of many kinds which are held there during every summer.

This district is always interesting to the motorist, but particularly at the time of the floral parade, which takes place nearly every year, under the auspices of the Saratoga Floral Festival Association. These parades are made exceedingly beautiful and attractive. The hotels, mineral spring companies, private residents and visitors vie with each other in making this event one of the most interesting that can be devised. Immense floats, drawn by several pairs of horses and decorated in the most elaborate and artistic manner, accompanied by costumed paraders, march through the streets, representing almost every nationality, and some of the most brilliant and interesting scenes in the world. Automobiles pass by so loaded that only their motive parts are clear of the flower masses, and the occupants of the vehicles are almost hidden in moving flower gardens of their own creation. September 1 is the date decided upon for this season's event.

Already Saratoga is dressed up for the 1904 season; the hotels have been papered and painted, and the street cleaning department has done its own important work. The question, "Shall we have a floral fete this year?" is already under discussion. To this the majority say, "Yes, provided you do not put it off too late for flowers and be obliged to resort to paper decorations." For be it known that the effort to hold the crowds as late in the fall as possible has worked injustice to this fete. The floral parade is acknowledged to be the climax of the season, and the people go away very rapidly after this event; for this reason it is put off as long as possible.

The principal events, however, are the races, usually held in August. With few exceptions the owners of the horses own motor cars also, and use them going to and from the race-track. In many cases these are large, expensive machines, for which there has been in the past no adequate storage facilities. But this year, with the expectation of a much larger number of motor cars than ever before in Saratoga, preparations to properly care for them are being made. Two new buildings are in course of construction, each able to accommodate a hundred cars.

There have been various rumors of private speed-courses for automobiles at Saratoga, but nothing has come of this as yet. From the air of preparation, 1904 will be a notable season.



An idea for motorphobiac legislators. Why not tires that will imprint the number of a car on the road surface.

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In the Gordon Bennett Cup Race run in Germany, Friday, June 17th, Emile Jenatzy, driving a Mercedes Car fitted with **Continental Tires,** came in **first,** and Baron De Caters, driving a Mercedes Car fitted with **Continental Tires,** came in **second** of all the German Machines entered.

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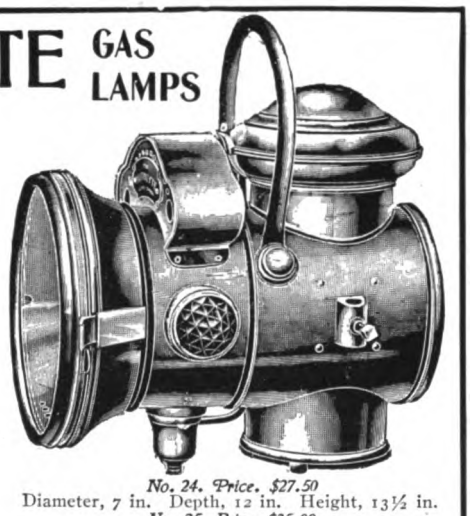
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The Handsomest Dutch Grill Room in America

GEO. B. WEAVER



The Battle of the Master Forces

(*Continued from page 30.*)

of Ponta Delgada, the capital city of San Miguel, and mounted with more certainty than if it had been a Pullman car timed from St. Louis into Chicago, leaving a small but wondering group to speculate upon their madness and hand down a new tradition to future ages of islanders.

If conditions held true, his course would carry him over the Madeira Islands and the Canary Islands. He would strike the African coast at the extreme south of Morocco, according to his calculations in about twenty-four hours after starting. It was extremely important that this should occur in full daylight, for the reason that the Canaries would indicate his exact position with regard to the coast, and test, without any possibility of error, whether or no his direction and velocity were answering to the hypothesis established by the experiments in the Azores. This would enable him to regulate his steering apparatus, and to correct any deviation which might be discovered. That this might necessitate his passing over the Madeira Islands at night was of lesser importance, though some indication of their lighthouses and harbor lights might be detected.

On their final start they reached the first mile of height in thirteen minutes, the second in six minutes later, the thermometer falling rapidly. By the time they had reached the fourth mile the glass was down to 8°. In forty-five minutes they had passed the fifth mile, and the temperature was below zero. The rarity of the air was beginning to tell. However, they were well supplied with compressed oxygen, should one of them give indication of shortness of breath, or dimness of vision. They had reached well into the zone of the steady wind; but, to call it wind is to create a false image of the wind. Wind suggests force, especially a wind going forty miles an hour, but in a balloon traveling with it no force whatever is felt—one floats in inertia.

It was noon when they started. Not a cloud or a semblance of one could be seen, nothing but the azure infinity above and the everlasting sea ahead, away across to the farthest circling horizon; for, of course, the horizon rose with the balloon. The feeling was one, in fact, of being encircled with a wall of water. Keen watch was kept for sight of any sail, but not a speck appeared. So day passed into the shadows of evening, and evening into night, in the everlasting silence. Ben slept, like the old sailor he was, but excitement and anxiety kept Lancaster on the strain. Once he saw a streak of flame slowly mark the ebon floor. Could it be Madeira? No; it was too early for that. Finally he argued it out that it was a passing steamer coaling her furnaces. Night passed into dawn rapidly, and dawn flashed into sunlit day, and yet no sign or speck upon all that waste of water.

About ten o'clock, Ben, whose experienced eyes had peered many a time and oft along the horizon, with an anxiety which only sailors know, thought he detected a little break in the level at the extreme southwest. No; it was an optical delusion, and yet it was not! Surely it was growing higher, a single point. Lancaster's unaccustomed eyes could see nothing at first, but, with the aid of the telescope, all doubt was soon dispersed. It was the peak of Teneriffe, which rears its head 12,000 feet above the sea—that landmark which has gladdened the eyes of navigators ever since the days when Vasco di Gama and the early Spanish and Portuguese navigators broke into these silent seas. Slowly it seemed to be moving toward them, and presently, one by one, like the pediment of a huge monument, its circumjacent islands grouped themselves around its base. There was no question about them. There they lay, Palma and Terro, Santa Cruz and Gran Canara, Lanzarote and Fortenventue—and, lo! away yet still farther northwestward were the tops of the Anti-Atlas Mountains of Morocco. The problem was solved. Now they could take things easy. For the next twenty-four hours they would be speeding over the most desolate, uniform, hilless, waterless, god-forsaken country on the face of the earth, the Wadan desert, which lies between Timbuctoo on the upper waters of the Niger and the seacoast below, the most southern point of Morocco.

On the day after that, they might occasionally have their eyes refreshed by the glint of a stream, now and again struggling against the inevitable fate, absorption; but not until they came to the region watered by the Congo would there be any appreciable change in the seemingly never-ending panorama of the waterless sea.

What a relief it was to see the map spread below take on a new color, soft to the eye and soothing, and to watch the shadows of the hills play across the chessboard, and trace a thousand rivulets, like threads of silver, make their warp and woof over the land.

The passing over the Congo River was an extremely important event, looked forward to ever since striking the coast, as the next point at which calculations could be made, settling again the question of the continuity in direction and force of the current and the point of steerage. According to the calculation which Lancaster had made it should be crossed exactly at the point where that river crosses the Equator, and a few minutes westward of the 20th degree of longitude. Observations taken proved that it was within a fraction of that exact spot that the lines of the balloon and the Congo did cross, and within two hours of the time he had marked on his map as that at which that auspicious event was to happen.

South of the Congo Free State, and between its watershed and that of the Zambesi, they were over the desert again, where even the feeders of that great system are dry eight months in the year, and this was one of the dry months; but it had not the everlasting, never-ending similarity of the Sahara, and by the morning of the fifth day since their

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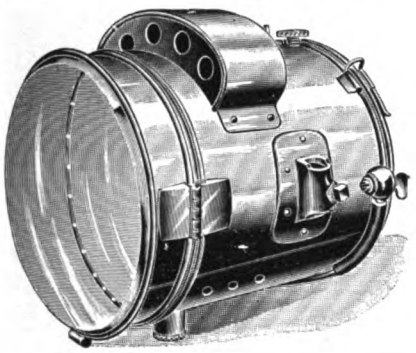
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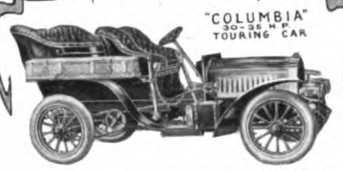
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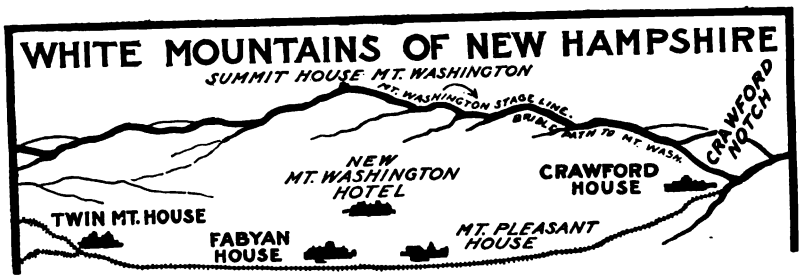


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start they were well over the lower waters of the Zambesi River. The sands had given place to rich black loam, and they could see, to the northeast, the well-known waters of Lake Nyassa.

Ever since they had started they had been troubled singularly little with clouds below them, and of fogs there had been none, except early morning ones, close to the north. What was their surprise therefore to have gradually drawn under them a veil of dark, foggy murkiness. At a distance Lancaster had noticed it, for it cut off his view in a direction he was specially anxious to observe, and that was seaward. He intended, before reaching the coast, to swing more to the south, to bite into the wind in fact, and make Cape Colony over the Transvaal and the Orange River Colony. It was soon settled what the veil was—it was smoke! Smoke from the bush fires which annually sweep over the entire Sheri Highlands, leaving the whole country for a time a blackened waste. At first neither Lancaster nor Lavinia paid any great attention to the smoke; it was annoying, and it stung the eyes badly, for it reached them, though by no means in such dense columns as it was below. Lancaster was intently watching the trend of the fire, so as to take the direction of its narrowest belt, and Lavinia was following his directions in steering, when suddenly she was startled to feel a dimness of vision which she was scarcely to be accounted for by this smoke, and she saw her brother, panting heavily, had fallen over. Ben, too, had collapsed. As Lavinia rose to raise her brother, her eye caught sight of the aneroid—good God! they had gone up to the seventh mile! And were still evidently rising! What had happened? It flashed into her mind in a moment: the heat of the fierce raging fire below had lightened the air above; filled it, in fact, with just such an atmosphere as the early balloonists utilized, and was forcing their balloon up! up! up! Before she could make the requisite movement to check this upward tendency, she found her arm was powerless, a moment later her head fell over on her left shoulder, and, after a brief interval, she lost consciousness. The last sound she remembered was that it was raining on the balloon. She could hear it pattering on the distended roof above. Then, oblivion!

(To be Continued.)

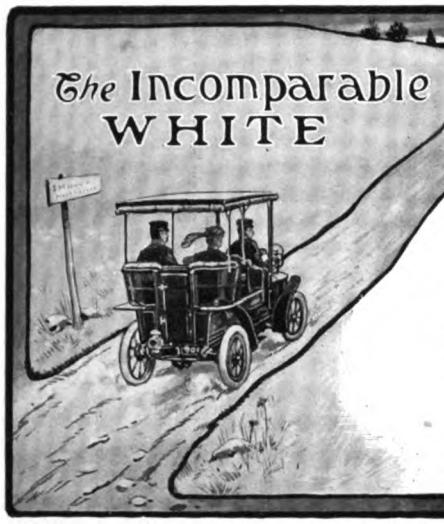
The Car That Made the Run

(*Continued from page* 14.)

ceedingly slippery, the rain still continuing, and the car skidded so badly that we at last took refuge in the porch of a nearby house while our chauffeur wound ropes about the tires. This prevented the skidding until the ropes wore out. It took us three hours, from 10:30 o'clock in the morning to 1:30 o'clock in the afternoon, to go thirty miles, the road was so dangerous. At Meyerstown we had lunch. From there on, the macadam toll road was taken and good speed became possible. We arrived at Reading at 4 o'clock and left half an hour later. The skies began to clear, and we kept to Philadelphia. The sixty miles lay behind us at 9 o'clock, the only difficulty en route having been caused by four miles of road utterly torn to distraction by the activities of a force of trolley-road builders. This compelled us to take to the tall grass, both figuratively and literally. By the time we had covered those four miles of sloping, grassy roadside on the low speed, we were in a frame of mind well calculated to appreciate the good traveling that followed. We stayed in Philadelphia over night. Although on Thursday morning it began to rain again, we once more took up the thread of our journey. Trenton was reached at 12 o'clock, and, after a leisurely lunch, we continued on to Perth Amboy and Tottenville. The good roads of Staten Island, the smooth-running motor of the car, and the short ferry-boat trip did the rest, and at 7 o'clock that night we were safely home in Thirty-second Street, Manhattan.

Our cyclometer indicated a total distance of 795 miles, all of which had been accomplished without breakdown, with the exception of one puncture and the broken spring.

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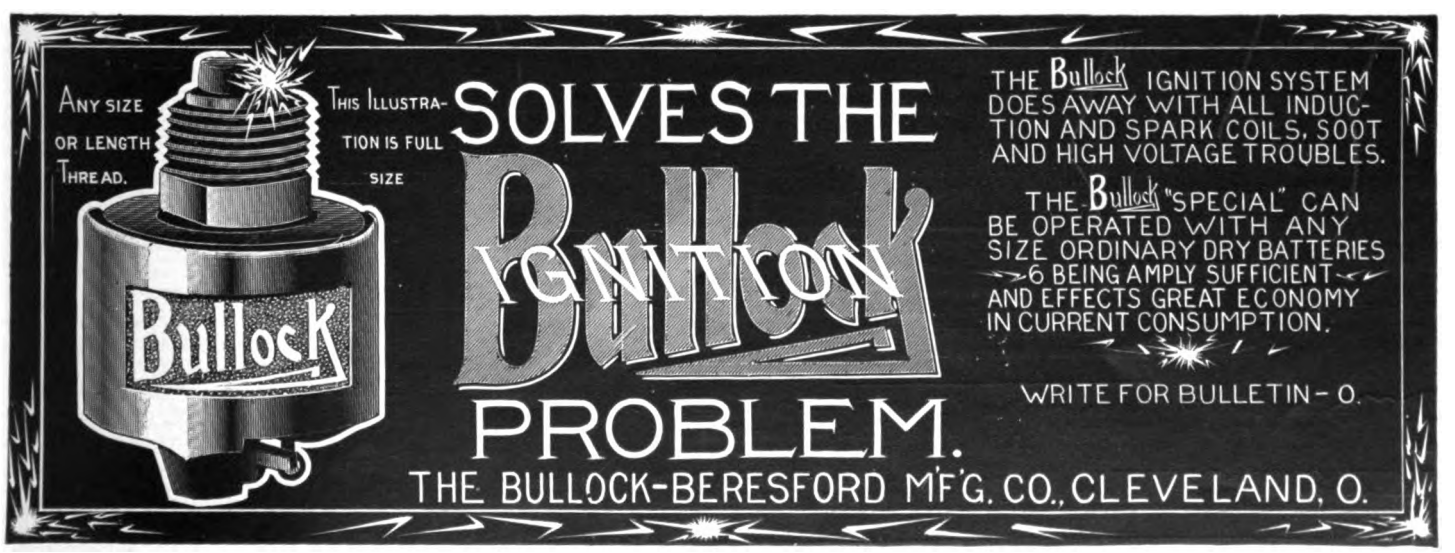
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See Article on Page 12.

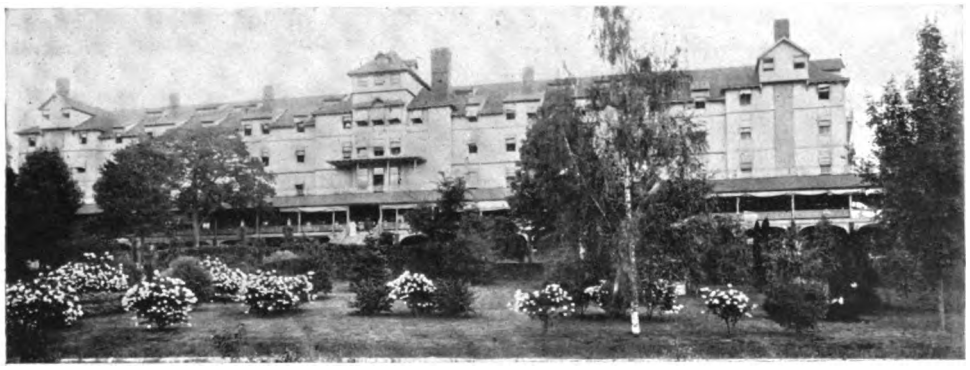
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Utility and Sport in Motor Racing

(*Continued from page 25.*)

that will lock wheels against both the drive of a hundred-horsepower engine and the projectile-like momentum of a ponderous car—are they apt to show weakness under such trifles as ordinary hills and emergency stops?

Yet the identical elements of racing machines are incorporated in the best classes of utility cars. The "Coupe-Internationale" in 1903 was won by a motor that now is used for comfortable touring; the winner of the same trophy in 1904 is almost a prototype of the stock output of its maker, while the car that did a mile in 39 seconds on the Florida strand is a proper racer only when stripped of its tonneau seats and fitted with a racing body. Similar instances might be multiplied. Even in the case of admittedly freak racers, it is a fact that the more conservative product of the same make is in many details identical. It would probably surprise some not too well-informed skeptics to know that there are small runabouts embodying structural features and devices uniform with ones originally tried and found not wanting on grotesque monsters of the race course.

As for the pleasure of racing, it is enough to say that no finer, cleaner sport exists than that founded upon the piloting of high-power motors against time and in competition. Motor racing is dangerous, perhaps; but so are other good sports. It is far from being a game for the weak or fearsome; but even these should remember that skulls have been fractured in golf and baseball, riders have been thrown from horses, swimmers and yachtsmen have been drowned, hunters have been accidentally shot, and so on through the whole list of amusements.

A sufficient answer to those who consider motor-vehicle racing to be dangerous is that those who fear it should keep out of it, but leave others to do which they will. As for the occasional spectators who have been injured in motor-vehicle accidents, their examples should warn others against the obvious folly of deliberately occupying places of danger.

What it is to ride in a racing car cannot be conceived by one who has never tried it, nor can it be enjoyed by the timid; but for others—well, it is truly termed "the sport of kings."

Imagine crouching in a low-hung car, while a glimmering streak of glaring road courses under the wheels like a turbulent river, and on either hand a shimmering countryside tears by like some land of dreams.

Hills ascend like walls and descend like precipices. Long, easy undulations in the road surface snap under the wheels like logs laid across the right of way. Curves confront us, there is a strong-armed twist of the steering wheel, and it is as if the very earth had flopped sidewise beneath us. People by the roadside appear minute objects in the distance, become gesticulating blurs and are lost, minute objects in the distance again. A dog, way ahead, runs like possessed to bark before us, but blends into the vanishing surroundings as if standing still.

Twin streamers of dust perpetually trail back from the front wheels, persistently following every waver of motion, and swirling a gray coating over everything. Particles of grit are discharged through the air like a sand blast. The air beats on us in a violent gale, maintaining an incredible pressure upon our bodies and faces, straining our necks, and blustering its way into the minutest crevices of our clothing. The muffler, taking care of a thousand explosions a minute, sings like a machine gun.

A vast respect is conceived for the wonderful creature of subservient steel that thrills beneath us—that risks and saves our lives at its every onward bound. Admiration is born for the stuff it is made of. It seems almost to possess a soul. The jar and jangle of its going become a form of speech: it hums enthusiasm, moans protest, and wails despair. It fears and exults, demurs and drives on, transforming seconds into hours and leagues into inches.

We forget all else but that we are occupied in a veritable annihilation of time and distance, and as we go pounding, jolting and thundering on, become possessed of a delirium that forgets fear, dares disaster, and defies death.

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Complete road map of the run on page 50 of MOTOR for June



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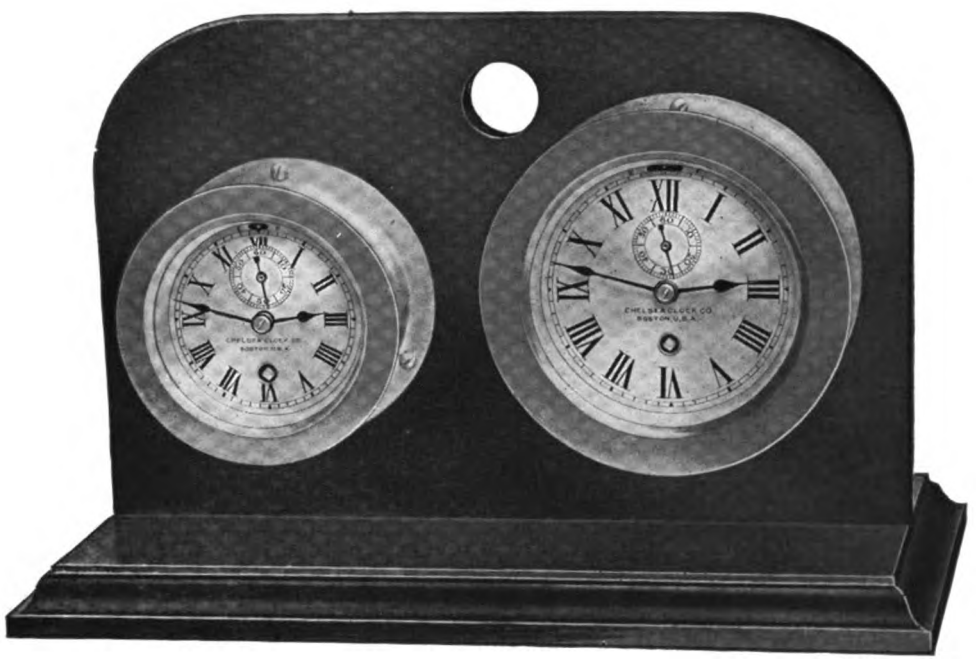
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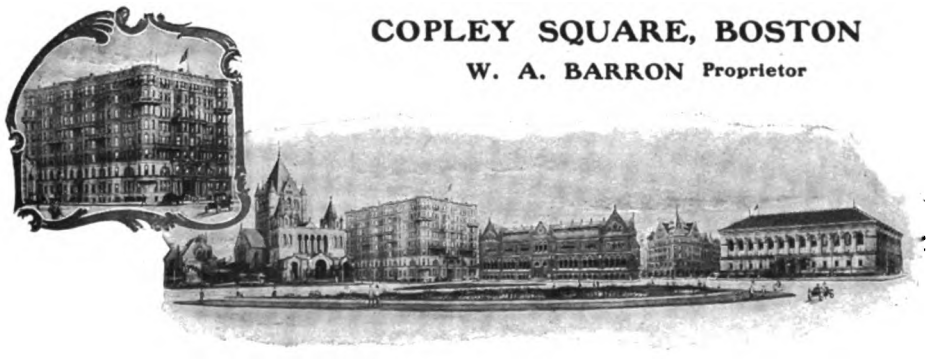
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MOTOR STAGE LINES

Slowly, but surely, the public service motor vehicle, in the form of stage coaches, omnibuses, mail wagons and freight vehicles propelled by mechanical power, is coming into use throughout the United States. The success that so far has attended traffic installations of this character promises that, especially with the general extension of good roads, a time will come when the public motor vehicle on the highroad may be as common a sight as the public motor vehicle on rails, and be of as great if not of greater utility.

While it is by no means claimed that power-propelled road vehicles are superior in carrying capacity to those running upon rails, their less expensive acquisition, maintenance, and operation, the small units in which they may be used and the absolute flexibility and adaptability of their service to varying traffic and to various routes, vests them with advantages peculiarly their own.

In the following paragraphs are mentioned a number of proposed and established services of the character mentioned. It will be noticed that in several cases railway companies are the prime movers in the innovation, showing that ample capital and experience in transportation methods are being brought to bear upon the new problem.

The Opal Stage Company has secured several motor vehicles, each capable of carrying ten passengers, and has succeeded in reducing the time on its line between Opal and Cora, Wyo., a distance of ninety miles, to one day.

A motor omnibus line is in successful operation in Wilkesbarre, Pa., running every half hour on South Franklin street. The machine carries twelve people and makes good time. With a ten-cent fare, it is said to secure much patronage.

A number of motor omnibuses, each carrying twelve people, are to be run between Sharon Springs and Canajoharie, N. Y., a distance of fifteen miles, as soon as the stage macadam road between those places is completed, provided plans of local residents materialize. A connection with the N. Y., C. & H. R. R. will be made at Palatine Bridge.

The Michigan & Wisconsin Railway Company has completed negotiations for a large motor stage for transferring its passengers from Iron Mountain to Quinnesec, Mich., a gap of five miles which it ultimately will close up by an extension of its tracks, but where it at present is considered that a first-class common road, for motor vehicles, will be sufficient.

Between New Albany and Hardinsburg, Ind., a distance of 50 miles, northwesterly from Louisville, Ky., a motor vehicle line has been established. One round trip is made daily, with a machine carrying six passengers and a quantity of freight and baggage.

A heavy motor vehicle for carrying freight, mail, etc., over the eighty miles between Hebbronville and Ft. Ringgold, Tex., has been experimented with by the United States government, but proved somewhat unsuccessful, owing to the heavy sand and exceedingly bad roads that prevail in that region. The originators of the enterprise are now advocating the construction of a better road, which, of course, will at once render the motor service thoroughly feasible.

Three heavy gasoline omnibuses have been secured by a Pittsburg promoter formerly prominent in the street-car field, and he proposes to start an express, passenger and local motor car service, with a five-cent fare and transfers, through various sections of Pittsburg and its suburbs where franchises to lay tracks cannot be had, and the street surfaces are sufficiently good to afford a reasonable prospect of success to the innovation. It is expected that vehicles seating as many as forty passengers will be used, and their number will be increased should the demand for such service be found as extensive as is considered likely.

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Yours respectfully,
(Signed) H. W. Whipple.

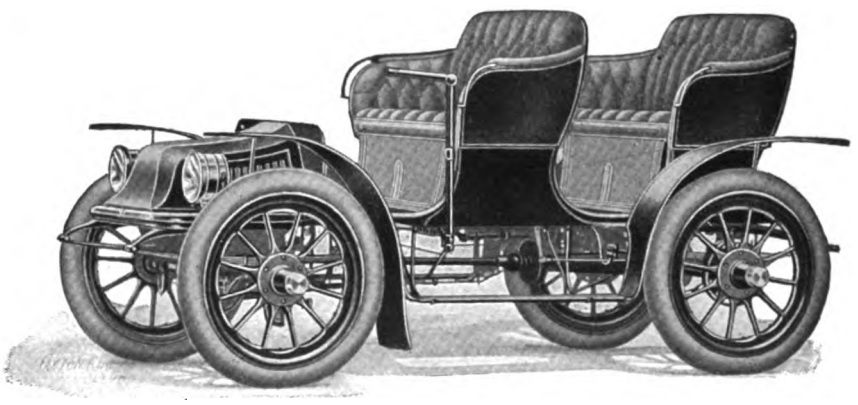
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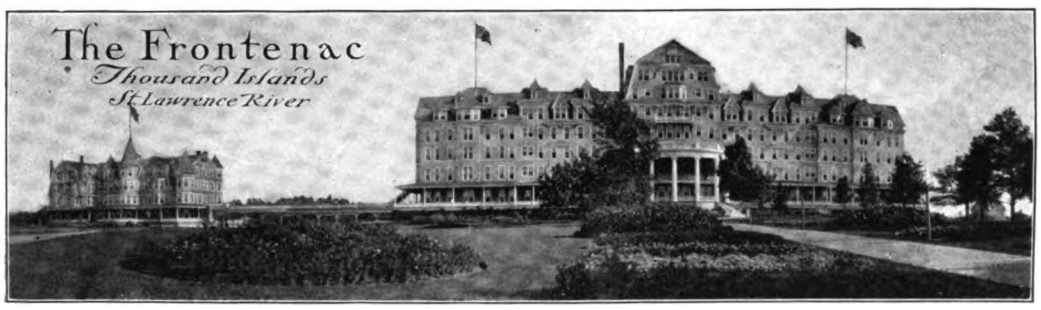
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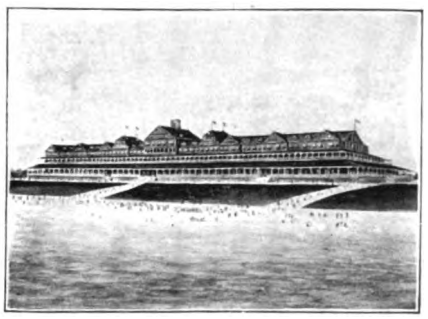
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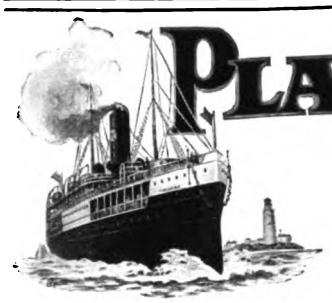
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THINGS THAT ARE NEW

As promising an invention as has appeared for some time in the motor-vehicle field consists of an electrolytic process of forming gasoline-engine water jackets, which has been developed by two English inventors. Briefly, the new method involves: first, a plain cylinder, machined both outside and in; and second, covering it with an electrodeposition of copper, in two coats.

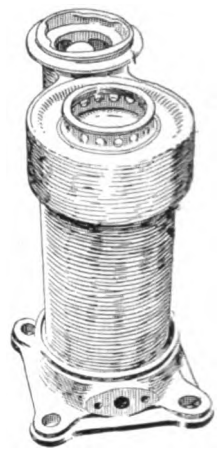


Fig. 7

The plating of copper is first placed uniformly over the outer surface of the cylinder, then this is covered with electrotypers' beeswax, so formed and placed as to occupy exactly the space that is allowed for the water. The plating is then continued until a sufficient thickness is obtained to withstand shocks and pressure. When the cylinder is removed from the last plating bath, the wax is melted out by the application of a moderate degree of heat, leaving an absolutely perfect copper jacket, immovably fixed to the cylinder, seamless and perfectly air-tight, and of a contour determined solely by by service requirements, rather than by foundry problems. Fig. 7 shows a cylinder constructed of nickel steel, one-sixteenth of an inch thick, and coated with the wax for the second plating. Fig. 8 shows a cylinder completed. The corrugations shown permit the jacket to expand without breaking, should the water within it become frozen. For cylinders of a given size and strength, a 60 per cent. reduction in weight is effected, while the expense of manufacture is reduced almost as materially, by the new process.

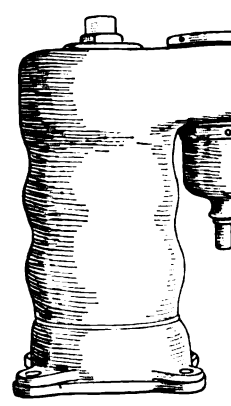


Fig. 8

The fact that these plated jackets are not mere cover shells utilizing the outside of the cylinders for their inner walls, as in the case of other attached jackets, but are copper enclosed on that side as well as elsewhere, makes it impossible for rust or similar incrustations to form in the jackets, even when water is left standing in them for a considerable time.

A new compound air pump, for inflating tires, etc., consists of two cylinders, as shown in Fig. 9, to the pistons of which, A and B, piston rods consisting of racks meshing with the pinion C are fitted. In its operation, the piston in the small, high-pressure cylinder falls as the low-pressure piston rises, and vice versa. There is thus a perfectly continuous compression, in two stages, with the result that a very much higher pressure than is possible with ordinary pumps requires a minimum of effort.

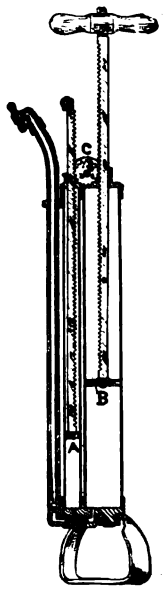


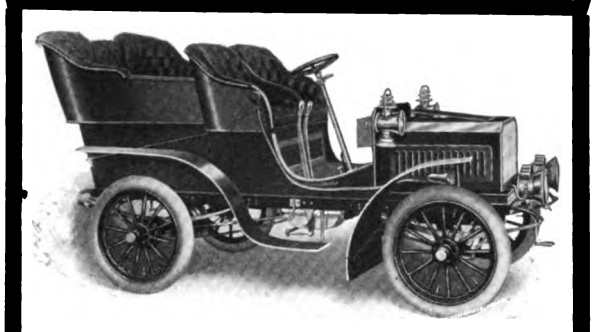
Fig. 9

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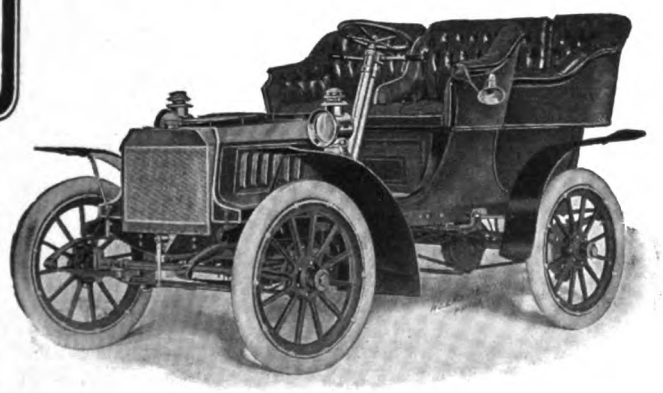
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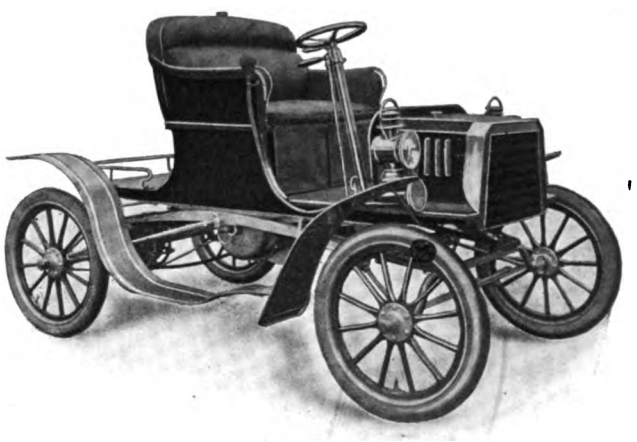
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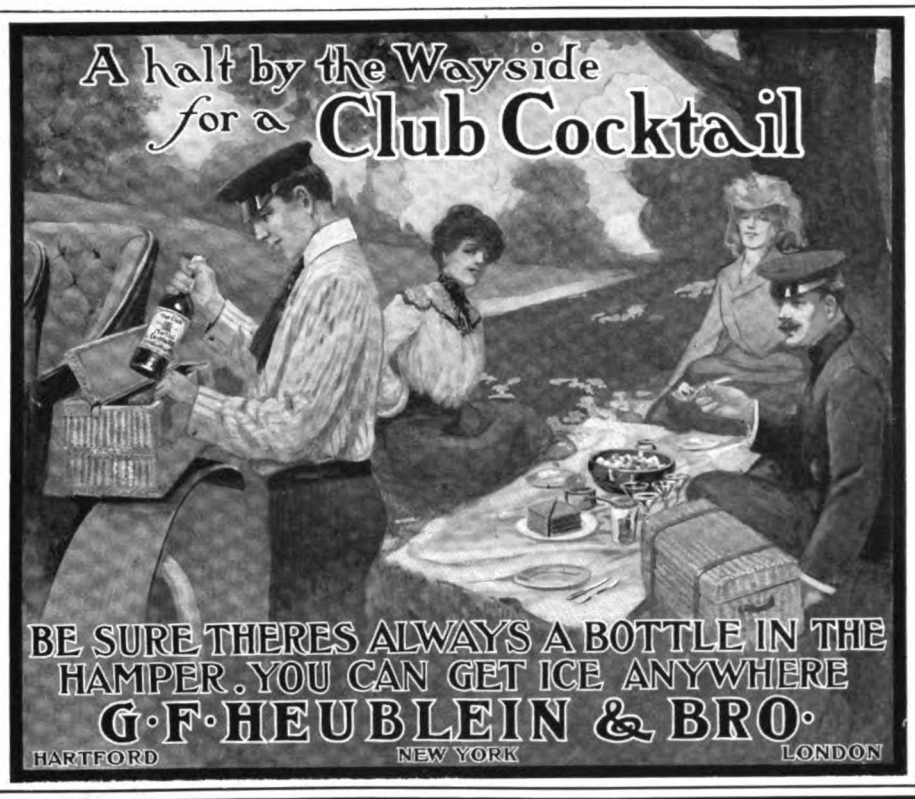
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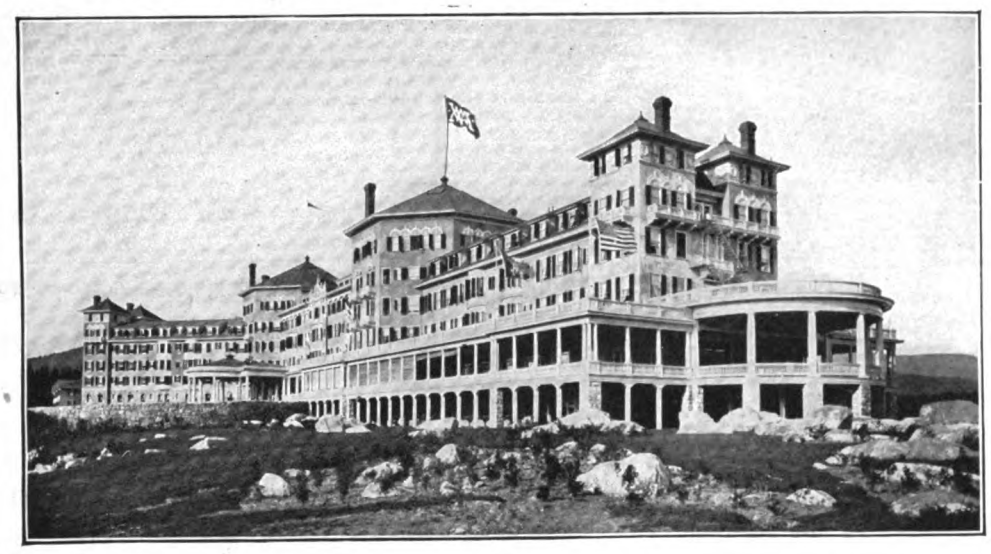
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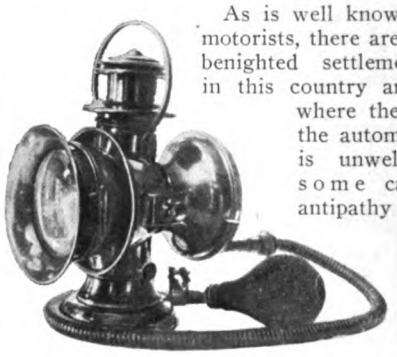
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As is well known to most motorists, there are numerous benighted settlements, both in this country and abroad, where the sound of the automobile horn is unwelcome. In some cases, local antipathy has been even manifested to the extent of the passing of ordinances requiring the motorist to use a bell, in place of the far more efficient and satisfactory signalling device. For the benefit of motorists thus persecuted, the device shown in the accompanying illustration has been evolved, ostensibly consisting of an ordinary side lamp, having a lens front, a kerosene burner and reservoir, and a reflector, but with the rear portion of the lamp ingeniously concealing a highly efficient horn, capable of emitting the characteristic "honk, honk" that has come to signify an oncoming motor car the wide world over. A bulb and tube of the ordinary pattern serve as a means of communication between the operator and the "lamp," and with this connection concealed in any convenient manner, it would be safe to defy the ordinary constable, with his lack of mechanical knowledge, to prove that the offending vehicle was equipped with the proscribed implement, though he might have the testimony of his own ears to add earnestness to his search.

MOTORING LITERATURE

One of the most novel and valuable of the many recent additions to the literature of motoring is Part I, "Cars and How to Drive them," published by *The Car Illustrated*, 17 Piccadilly Mansions, London. This is a neat volume, of 126 large pages of good paper, in which complete instructions for driving eighteen well-known makes of motor cars are given, the information in each case covering all the essential points that the novice must learn before becoming an expert. In addition to this material, relating to certain cars, there are nine general chapters on How to Choose a Car; Some Points as to Driving; Motor Driving for Ladies; On the Care of Tires; Hints on Touring; The Law as to Lamps; How to Build a Motor House; Little Things that Matter; and The British Equivalents of Metric Weights and Measures.

A new book for those interested in the technical problems of motoring is "The Gas Engine," by Frederick Remsen Hutton, and published by John Wiley & Son, New York. In this handsome 483-page volume the theory of the internal-combustion engine, such as is widely used for motor-vehicle propulsion, is exhaustively treated. Much that is new and of particular interest will be found in the mathematical and diagrammatic analysis in which the work abounds, and which is certain to prove of the utmost value to engineers and designers. Much of this matter is entirely original data, compiled and formulated by Mr. Hutton himself, in connection with his work as professor of mechanical engineering at Columbia University. In addition to the twenty chapters of interesting text, there are 243 cuts and diagrams, illustrating typical constructions and important points. The work will certainly become an authority in its particular field.

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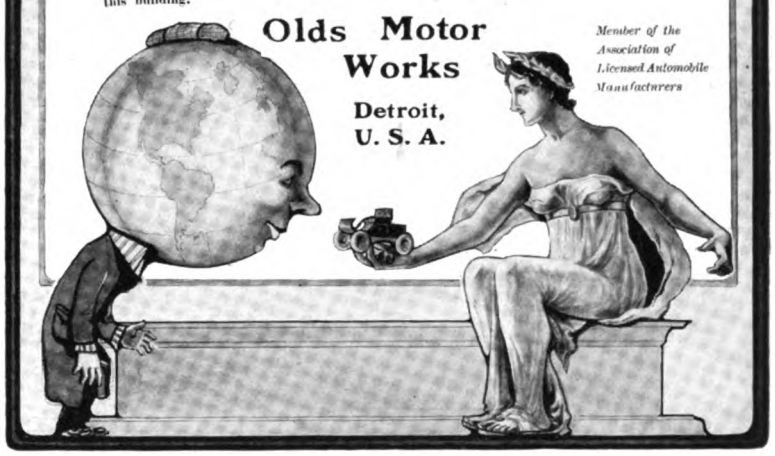
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It is becoming more and more the practice, among builders of high-priced cars, to equip their vehicles with governing devices by which the speed is automatically maintained at a predetermined rate, regardless of hills and other inequalities of the road. This is very generally accomplished by means of governing springs automatically weakened or strengthened in proportion to changes in the engine speed, so that the motor cannot of itself slow down in climbing a hill or accelerate in descending one. When a change in speed is desired, it is merely necessary for the operator to vary the tension of the governing spring by foot pedal or hand lever.

An ingenious mechanically-operated tire pump, which has come widely into use abroad, is that illustrated in Fig. 10. This pump is so constructed that it can be geared directly to the engine, in such a manner that it may be thrown into operation as required, either by

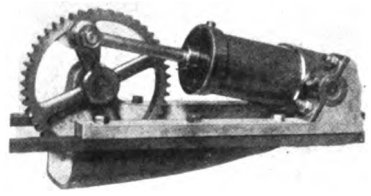


FIG. 10

hand or by an automatic device. Its weight complete is five pounds. A small pressure gage connected with it makes it easy at any time to ascertain the pressure in a tire, while a tiny whistle is also provided, with a safety valve in its base, so that it sounds the moment the tire is pumped up to the desired degree.

One of the chief objections urged against the mechanically-operated valve always has been the complex operating mechanism that it necessitates. Now, however, a cam and rocker combination has been perfected by an English concern, that not only simplifies the working parts to the extent that is common in the case of engines having exhaust valves alone mechanically operated, but also adds materially to their reliability. The operation of this device will be more clearly understood upon reference to Fig. 11, in which A represents the stem of the inlet valve, B the stem of the exhaust valve, C the rocker and D the cam, the latter affixed to the half-motion shaft.

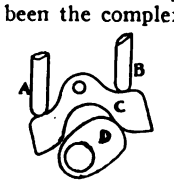


FIG. 11

Another simple device for actuating both inlet and exhaust valves on a single-cylinder gasoline engine is that shown in the accompanying illustration. In this mechanism, the inlet valve is operated directly by a cam attached to the shaft of a half-motion wheel, while the same cam opens the exhaust valve through the medium of a bell crank. As all of the moving parts, with the exception of the valve stems, are contained within a very neat casing, the walls of which are cast integral with the crank casing of the engine, simplicity, durability, and neatness are combined.

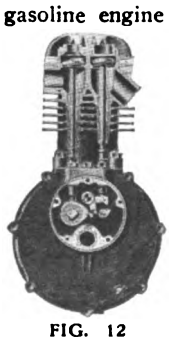


FIG. 12

In the use of some pneumatic tires with thick, puncture-proof walls, the mistake is made by many motorists of attempting to run them deflated. So serious has this practice become, a well-known manufacturer has found it necessary to send out a caution circular, reminding users that tires of this type, while puncture-proof, are none the less pneumatic, and require to be kept fully inflated.

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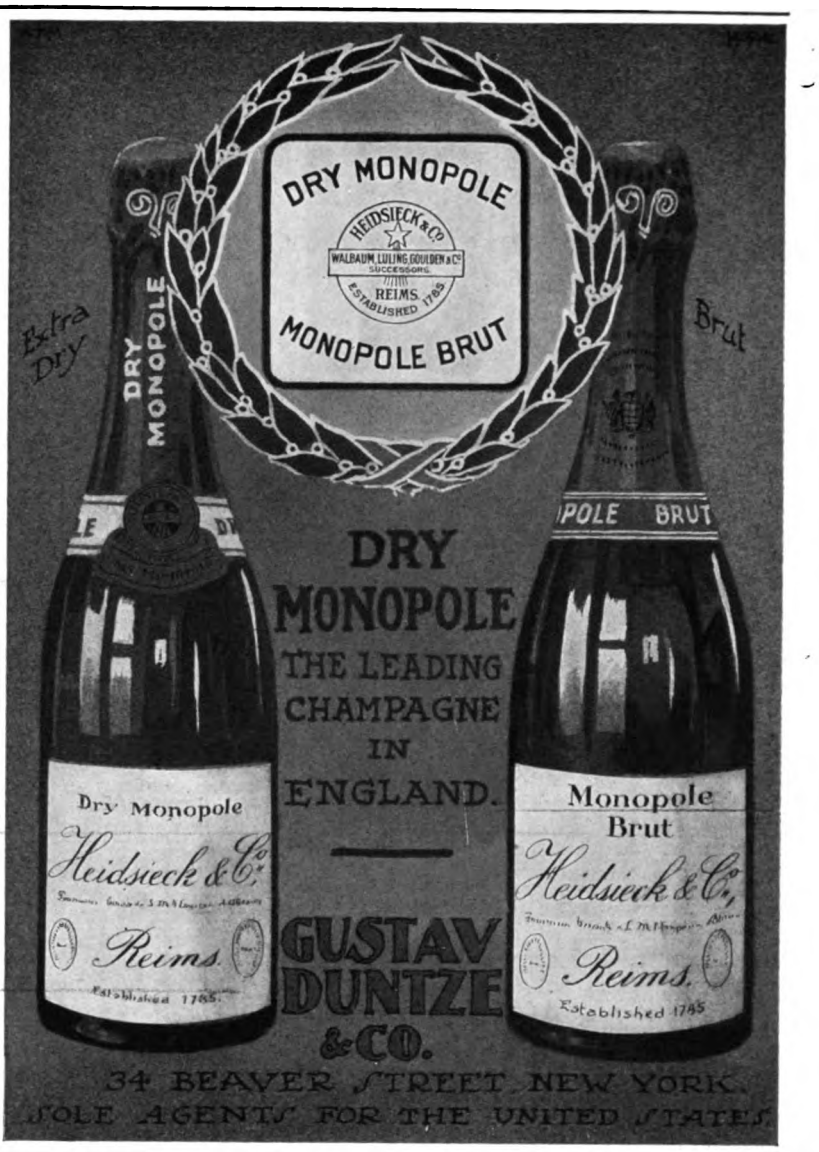
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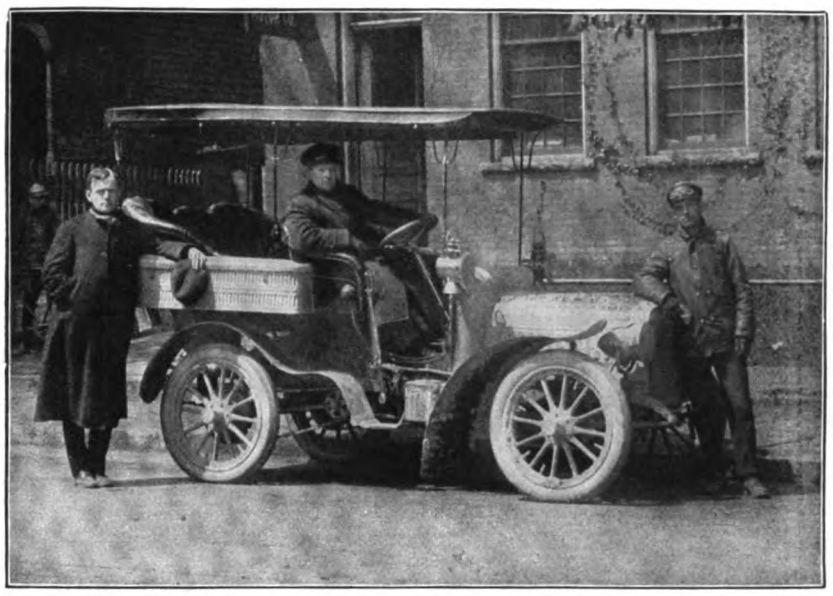
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The Girl and the Motor Boat

(*Continued from page 28.*)

sheeting cap. French garments of rubber sheeting in this coat and skirt style in many different colors are among the recent Saks importations from Paris.

Coat and skirt costumes of rubberized taffeta are also the very smart thing for motor boating. The skirts are short, and many of them trimmed with stitched silk bands, while the coats are either in Norfolk or box shape. The sleeves are cut rather full, but are provided with an inside windcuff, which is worn under the regular sleeve and gathered close to the wrist with a narrow elastic. These rubberized taffeta costumes come in many dashing, as well as sedate, colors. They are made up in scarlet silk with just a touch of soft black kid in the way of a trimming accessory. And they also come in the champagne shade, in oyster white, and in a faint pink coral tint.

A pink rubberized taffeta costume for motor boating sounds somewhat audacious, does it not? But combined with brown kid it was less daring than one would suppose. The kid in this specially imported French model was of a dark shade of brown, and was used for the big buttons, the cuffs, and collar, and as a piping for both the skirt and the coat. With the silk rubber costume come very smart-looking toques, made of the same material. The silk for the hat is laid in folds and is then shaped so that it is becoming to the individual wearer. Generally, a shirred rosette or a plain rosette with an odd button in the center acts as the only trimming.

Long coats of rough woven pongee are also used by the motor boat girl. And many of them are made in the quaintest of styles, with full skirts and long drooping shoulders. With these coats the headgear worn is always suited to the special occasion. And right here let me mention the adjustable hoods of pongee which are the most convenient things to have on hand when the weather suddenly changes. They are made very full and can be buttoned on to a hat or cap. They protect the entire back of the head, and then tie in front in an effective bow. These hoods which come in a variety of colors are another French idea which Saks seized upon.

Many times the summer girl will use the motor boat purely as a vehicle of conveyance, and on these occasions she frequently wears a very much befrilled frock. To protect her evening gown aboard a motor boat, many lightweight rubber coats have been designed, made with generously full skirts and sleeves. There are also silk rubber capes to wear if it happens that it is the waist only that needs special protection. These capes are made three-quarter length and in military style, with just a touch of gold about them. After the hop is over, and when the trip home to one's hotel or cottage is to be taken in a motor boat, the auto lady's rubber shirt is a convenient wrap to slip on over the gown. This garment, which is nowhere near as negligee in appearance as its name implies, is sometimes made of rubberized taffeta or of raw pongee. It has a standing collar and yoke of elastic, and its only opening is at the neck. To wear over decollete gowns this auto shirt is quite the best thing in the way of a wrap.

If the home trip is a long one, a rubber tissue veil is also very convenient to own. It takes the place with the modern belle of the lace scarf, which the more lackadaisical society girl of thirty years or more ago wore over her hair. This rubber tissue veil is as light as a feather and is plaited on to a ribbon band. The ribbon is tied about the head, fastened under the coiffure in the back. Many of these rubber tissue veils are made so long that they form a shoulder cape buttoning at the throat in front. It is only when the dance is over that these rubber tissue veils are at all practical to wear, as of course they are apt to disarrange an elaborately dressed coiffure. On the other hand, they are an invaluable preventive to neuralgia when worn on the homeward trip if that trip happens to be across the water in a motor boat.

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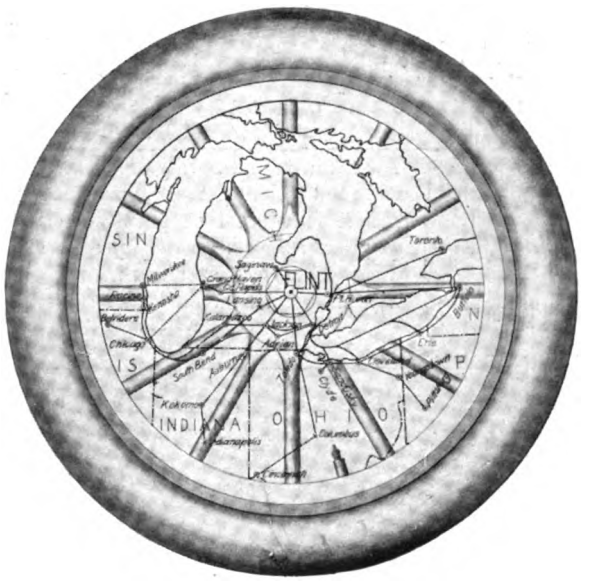
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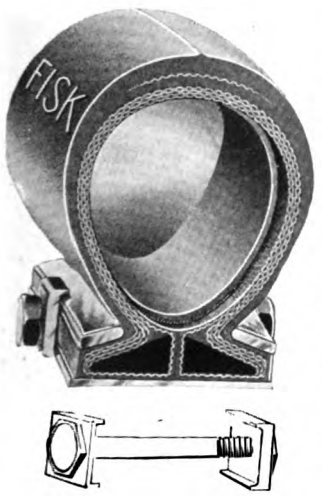
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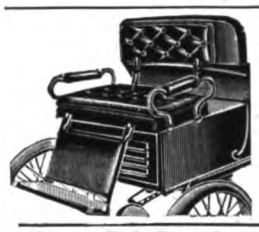
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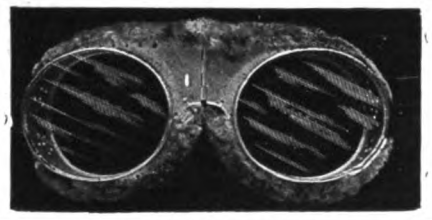
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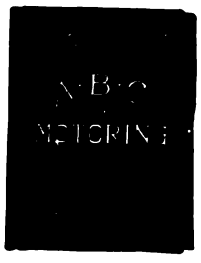
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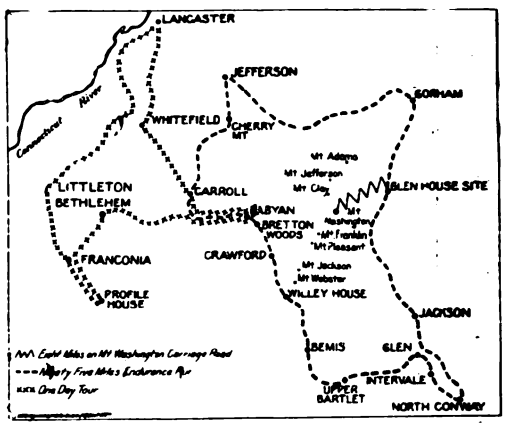
From Earth to Cloudland

(*Continued from page 19.*)

cars on the mountain road after the contests. As Mr. Fosdick did the trip in 1 h 40 min. 30 sec., he, too, improved the previous record.

The climbing was an incident of a trip through the White Mountains having for its object the completion of plans for the July combination tour and climb, which will begin on the 11th and continue during the week. Harlan W. Whipple, president of the American Automobile Association, had intended to make the ascent with his Mercedes, but a doubtful brake caused him to postpone until the meet itself. A story might be written, replete with thrills, telling of the after-dark ride which Mr. Whipple in that Mercedes gave to "Senator" Morgan and me, from Whitefield, where we left the train, to Bretton Woods, Harry Fosdick manipulating the searchlight. We escaped with our lives, and thanks have been offered many times since.

In the course of the trip through the mountains we found that the coming of the motor car is beginning to be generally recognized, especially by the more enterprising managers



of the summer hotels, many of whom now own machines themselves. Consideration of the rights of horse-drawn vehicles should be given by every fair-minded motorist, for it must be borne in mind that in no section have horses had less opportunity of becoming accustomed to the motor car than in the White Mountains.

While their discernment may have a business complexion, it must be said that John Anderson and John Price have been pioneers in this opening of the mountains to the motor cars. They were of the party that made the tour, and with them at their invitation came State Engineer Storrs, who proved a willing convert to the wiles of motoring and promised to use his best endeavors in bringing about needed improvement of many mountain highways. W. A. Barron is another who comprehends the situation, and Ethan Allen Crawford and Mr. Mudgett count among the other real live people. Another year the motorists will be innumerable after they have heard of the pleasures of those who will tour this season a region which for scenery is not excelled in the Eastern States.

OUR GORDON BENNETT SUPPLEMENT

The cable having supplied the word picture of the great Gordon Bennett race in Germany, there still remains the pictorial story, and it is accurately told in the supplement which accompanies this issue of MOTOR. The photographs actually taken on the days of the race did not arrive on this side until June 29. Any pictures printed previous to that date and purporting to have been taken during the race itself were not bona fide, since the Teutonic brought the first photographic material obtained on June 17 in Germany. The views contained in the supplement are representative, and give an excellent idea of the running of the annual Derby of motordom, which, it is hoped, will be secured for this country in 1906.

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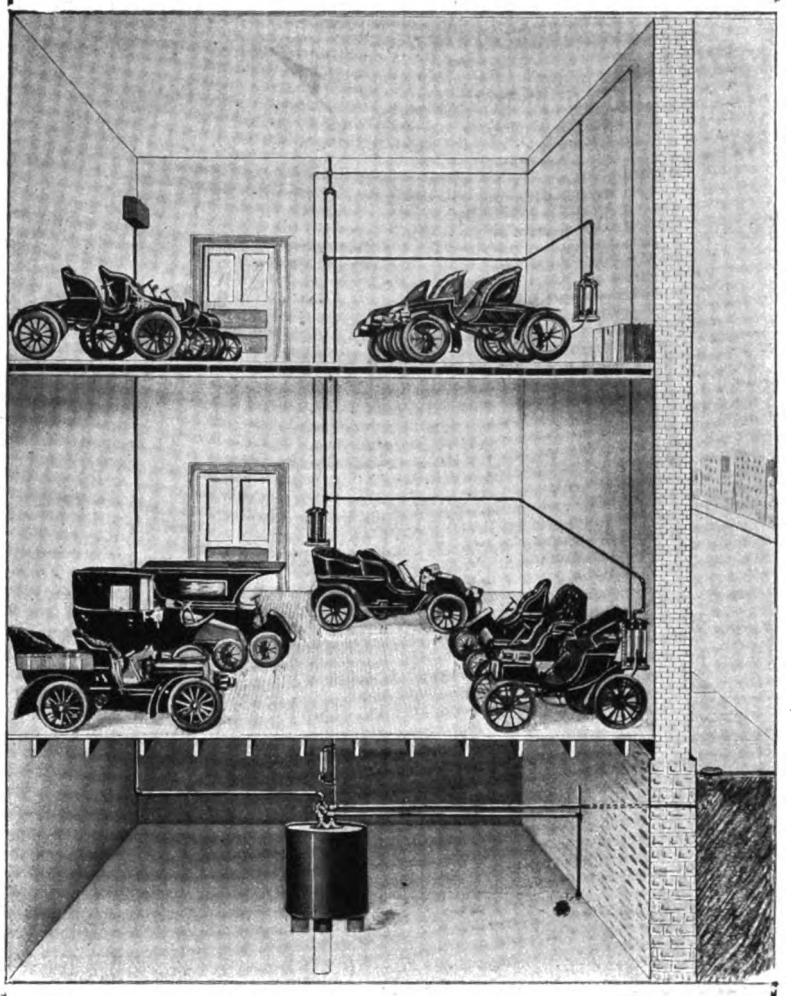
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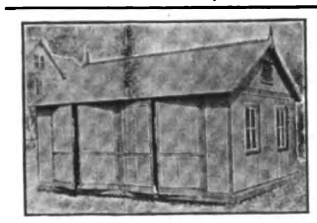
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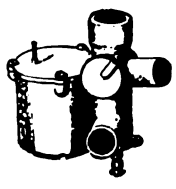


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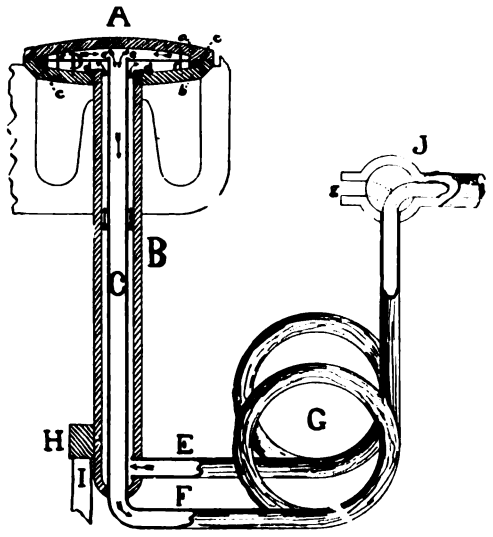


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USES OF COOLING SYSTEMS

By Victor R. Lougheed

The water-cooling system is so firmly established as a standard detail of motor-vehicle power plants, that it is remarkable that so little effort has been directed to the application of water cooling elsewhere than to engine cylinders. While it is true that complication always is a thing to be avoided in any machine, especially in the case of one subjected to such severe usage as falls to the lot of the average motor vehicle, it is none the less true that every elaboration of detail for securing a result not otherwise to be attained, has its justification. Moreover, in extending the usefulness of water cooling, the complication would be unobjectionable, as it would be easy to arrange shut-off cocks so that the additions to the cooling system could be disconnected, in case of leakage or similar trouble, thus readily and at any time reverting to the simpler standard arrangement.



Among the details of a gasoline automobile that with advantage might be water cooled are exhaust valves, brakes, mufflers and acetylene-lamp generators.

Exhaust valves are among the most vulnerable parts of a gasoline engine, the heat of the exhaust gases quickly pitting and warping them. By the use of nickel steel, with a large percentage of nickel, and by well-planned arrangement of exhaust ports and passages, this trouble has been minimized. But it still exists, and every motorist of experience knows what it means to grind or replace a leaking exhaust valve on the road.

To cool an exhaust valve by water, the arrangement sketched above is suggested. While this is by no means the first time that hollow-valve stems have been advised, one well-known American maker using air circulation within the valve stems of his motor, it is believed to be the first time that water cooling has been proposed for this service. In the construction shown, A is the valve head, composed of two members, *a* and *b*, screwed together at *cc;* B is the valve stem, a hollow steel tube with thick sides, riveted into *b*, at *dd;* and C is a thin copper tube centered within the valve stem B, and at *ee* riveted into the thin sheet copper baffle plate D. Small wings *ff* formed by notching and bending the edges of D keep it centered inside of the valve head, at the same time allowing space for the circulation of water up the value stem B, under the baffle plate D and then around and over it, and down the tube C, as shown by the arrows. Light copper feed pipes, E and F, lead to the main water system, the coils at G allowing enough flexibility to permit the lift of the valve. A lug, H, on the valve stem, provides an operating surface for the cam I.

It is quite possible that rubber tubing might be found sufficiently serviceable to substitute for the feed pipes, E and F, thus simplifying the connections to the water supply. Three-way shutoff cocks, J, provide for shutting the water out of the valves in case of a leak, at the same time opening the valve spaces to the atmosphere at *g*, to avoid trouble from the generation of

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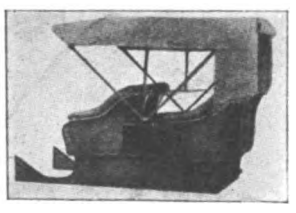
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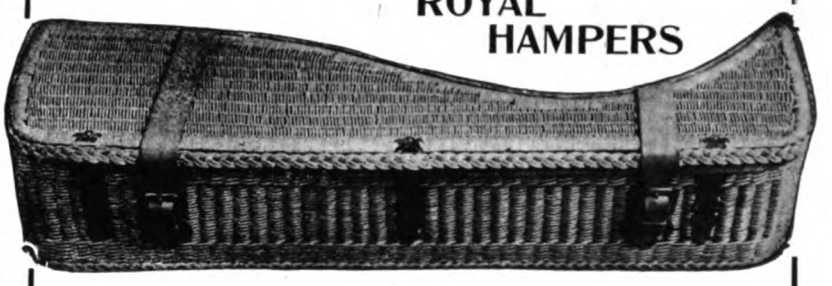
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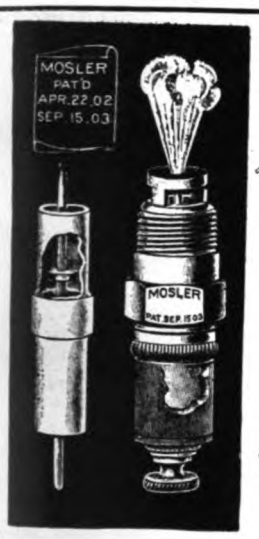
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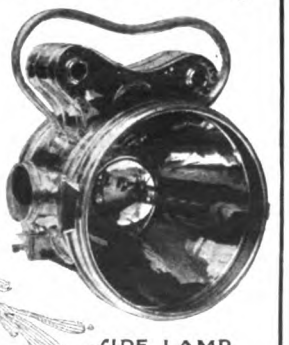
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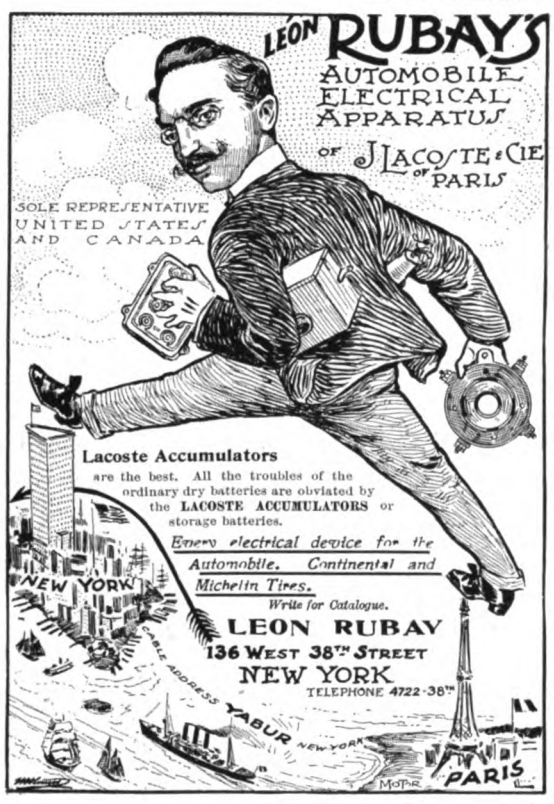
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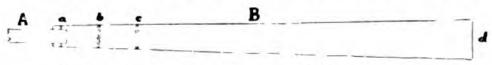
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steam in the valves, with consequent pressure.

Mufflers are not generally supposed to require cooling, and for this reason are commonly permitted to operate at almost red heat. Nevertheless, no portion of a gasoline engine power plant could more profitably be kept cool. A little consideration of the principles involved in silencing the exhaust of a gasoline engine makes this very apparent.

The reason that an exhaust is noisy is that the gases are permitted to escape into the air under pressure, and the reason they are under pressure is because they are hot. There therefore are two means of silencing an exhaust: one, breaking up and dividing the stream of gas by baffle plates, etc., and setting up cross currents in it, so that it is forced to expand slowly; and the other, cooling the gases so that they contract by losing heat and do not expand at all. The first of these is the usual method, but is objectionable because it causes a back pressure that invariably subtracts from the power of the engine, sometimes to the ex-



tent of 10 per cent. or more. Silencing by cooling is far preferable, but is rarely applied, despite the fact that its application would seem very simple. Probably the best form in which it so far has appeared is shown herewith, in which air cooling is employed, A being the exhaust pipe from the engine and B the muffler. The latter consists simply of a very long, unobstructed, and slightly flaring pipe, perforated with three circles of small holes at *a*, *b* and *c*. The outer air, entering through these holes and mingling with the hot gases, cools them, and they issue from the mouth *d* of the muffler with a hardly perceptible sound. Whether water cooling would afford results sufficiently better to warrant its application remains to be determined.

Generators for acetylene lamps, especially of the form commonly used for motor vehicles, in which a comparatively small quantity of water is applied to a large quantity of carbide, would give better results if cooled. The fact that these generators unavoidably become very hot when in operation, and that heat impairs the quality of the gas supplied, loading it with tarry products that obstruct burners and passages, is the cause of nine-tenths of the troubles that arise with acetylene lamps.

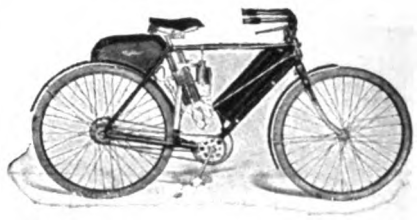
A few generators are made with water jackets, but as the water is not circulated it must be renewed frequently to be efficacious. A connection with the cooling system of a car, however, should avoid renewal and improve results.

Brakes are an element in the makeup of a motor car that not only may be injured but even may cause serious accident through overheating. It is a question if there is any non-cooled brake made that will stand the prolonged application necessary in such an unusual, but not impossible, case as a cost down an eight- or ten-mile hill. One or two brakes are so made that water can be dripped upon them when necessary, and a few have some slight provision for air cooling, but the brake with a water-jacketed shoe or drum is not yet in evidence. Whether or not it will mark an advance over present practice can be best determined by experiment.

While referring to the cooling problem, it is interesting to note that there has not yet been any automatic device developed for regulating the degree of cooling to which an engine is subjected. The necessity for something of the sort is readily apparent when it is realized that a cooling system of sufficient capacity to cool a given engine in hot weather may in cold weather overcool it enough to reduce its power as much as 20 or 30 per cent. This has been demonstrated by test, and is so well recognized by many motorists that they make it a point to stop the circulating pump in cold weather. A better plan would seem to be the fitting of some sort of thermostatic control in the cooling system, so that it would always maintain the water at a constant temperature, by accelerating or retarding the pump action, as necessity might require.

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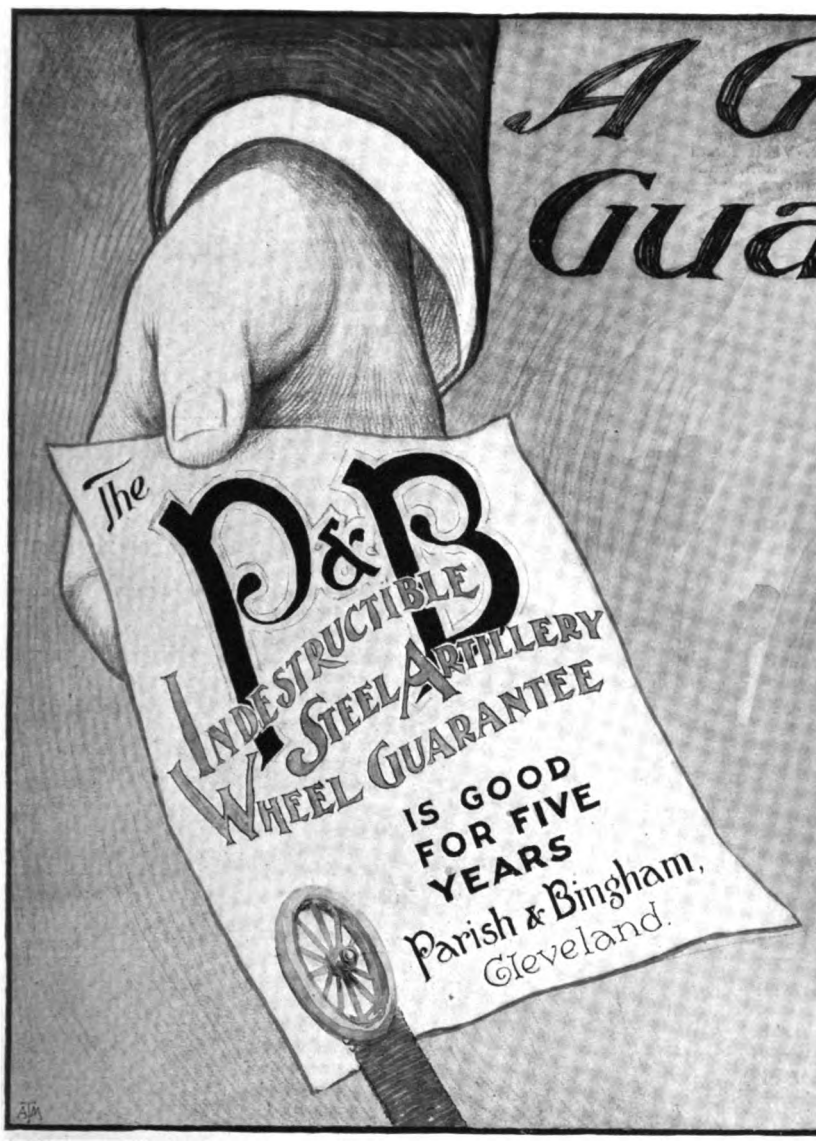
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The 90 h. p. Mercedes with which W. K. Vanderbilt Jr., broke all records won a dozen or so silver-plated lamps, but the owner of the car has since paid us his good money for the two 8-inch Rushmore Searchlights and the new automatic generators seen in the cut, and says he would not think of riding without them.

MORAL:—Good things are not given away.

RUSHMORE DYNAMO WORKS
PLAINFIELD, N. J.

THERE IS JUST ONE RELIABLE SPORTING AUTHORITY IN AMERICA

The American Almanac for 1904 devotes more than 100 of its 1,000 pages exclusively to the subject of Sports.

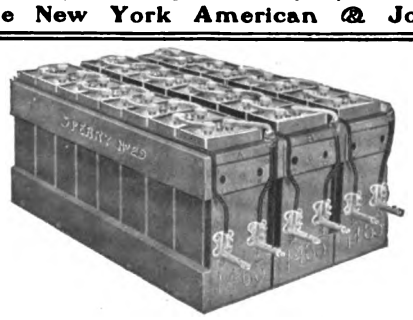
The American Almanac, Year Book, Cyclopedia and Atlas for 1904

Is the One Sporting Authority in America whose Reliability Cannot be Questioned. Superbly Illustrated and Handsomely Bound in Cloth. **Price, 50c.**

For sale by all newsdealers, or by mail from . . . **The New York American & Journal, 154 Nassau Street, New York City**

SPERRY
AUTOMOBILE BATTERIES

Inquiries gladly and promptly answered



National
Battery Company
BUFFALO, N. Y.

New York Office, Postal Telegraph Bldg.

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USE
ALBANY GREASE

THIS TRADE-MARK ON EVERY PACKAGE



FOR YOUR
Automobile

LOOK OUT FOR YELLOW LABEL

WHY?

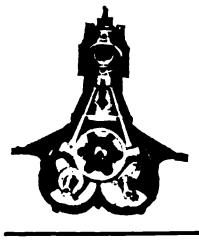
It is the only safe lubricant.
It is the standard "auto" lubricant.
It is always uniform in quality.
Can be used in any style or make of Compression Cup.
It avoids rust and reduces friction.
It prevents hot journals and *will not gum.*
It will always bring you back in good condition.
It is the cleanest and cheapest of lubricants.
IT IS USED BY MOST MANUFACTURERS OF AUTOMOBILES TO START THEIR NEW MACHINES.
It can be purchased the world over from Engine and Mill Supply Houses, Hardware and Oil Dealers.
Use No. 2 grade for Winter and No. 3 for Summer. The quality of the grades is the same; the difference is only in consistency.

ONLY MADE BY
ADAM COOK'S SONS
313 West Street, N. Y. CITY

The Chainless
Wolverine
Touring Car.



The Reid Mfg. Co.
20 to 23 Jones St.
Detroit, Mich.
catalog now ready.



INTREPID
SINGLE CYLINDER

No Vibration from any source, torque reaction, reciprocating or rotating parts. Ideal for **Motor Boats** Twin shafts rotating in opposite directions.

Rotary Motor Vehicle Co.
49 Columbus Ave., Boston, Mass.

"FIAT"
AUTOMOBILES

This famous Italian Car requires no expert to handle it. As easy to operate as a stem-winding watch. New 1904 Models now on exhibition.

HOLLANDER & TANGEMAN
5 West 45th St. New York

Telephone, 1502 Madison Square
SCANDINAVIAN FUR & LEATHER CO.
IMPORTERS OF
SCANDINAVIAN FUR & LEATHER GOODS
FOR AUTOMOBILISTS
Opposite THE WALDORF-ASTORIA
16 WEST 33d STREET NEW YORK

MOTOR CALENDAR

Motor-Vehicle and Motor-Boat Exhibition, and Aeronautical Contests, at St. Louis World's Fair

JULY

THUR. 7 to July 9	Meet of Federation of American Motorcyclists, at Cambridge, Maryland.
SUN. 10	Mont-Cenis Hill Climb (A. C. Italy)
SUN. 17	Motor-Boat Races, Ostend, Belgium
MON. 18 to July 23	Ostend Week
FRI. 22	Kiel Motor-Boat Races
SAT. 23 to Aug. 5	Spa Automobile Fetes
SAT. 23 to Aug. 5	Motor-Boat Races, Lucerne, Switzerland
TUE. 26	St. Louis World's Fair Run
SAT. 30	British International Cup Race for Motor-Boats, in the Solent

AUGUST

WED. 5 to Aug. 11	Paris-Deauville Motor-Boat Race
THUR. 11	New York Yacht Club Motor-Boat Races, Glen Cove, Long Island.
FRI. 12	Motor-Boat Race for Gaston-Menier Cup
SAT. 13 to Aug. 14	Calais-Dover-Calais Motor-Boat Race
MON. 15	Calais-Boulogne-Calais Motor-Boat Race
THUR. 18	New York Yacht Club Motor-Boat Races, Newport, R. I.
MON. 22 to Sept. 4	Paris Commercial Vehicle Trials (A. C. France)
SUN. 28	Ventoux Hill Climbing Contest, Avignon, France

SEPTEMBER

FRI. 2	Chateau Thierry Hill Climb
	Reliability Trials, Automobile Club of Great Britain and Ireland

OCTOBER

To Nov.	Light Van Trials, England.
WED. 5	Dourdan Kilometer Trials
SUN. 9	Gaillion Hill Climb
FRI. 14 to Oct. 22	Leipzig Cycle and Motor Show

NOVEMBER

SUN. 20	100-kilometer Trials (Algeria)

DECEMBER

Paris Salon

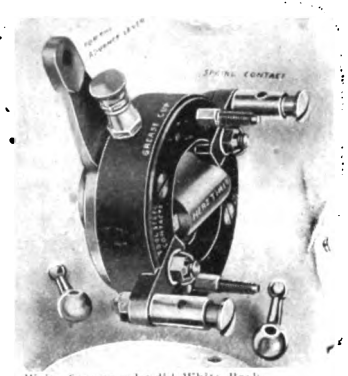


ONCE OWNED ONE.

"Do you own one of them automobiles?"
"Nope; I did, though."

All the half-tone and line plates in
MOTOR
including the cover plates in colors,
ARE MADE BY
THE GILL ENGRAVING COMPANY
140 Fifth Ave., New York
We make a specialty of the highest grade of catalogue and advertising plates, from wash drawings or retouched photographs.

GASOLENE AND NAPHTHA
Storage Tanks
Of All Sizes and Dimensions
L. O. KOVEN & BROTHER, Mfrs.
50 CLIFF STREET, NEW YORK



Write for our splendid White Book.

THE
Herz-Timer
...or...
COMMUTATOR
works as promptly and accurately as a good watch. A bad circuit-breaker gives no end of TROUBLE.

Tool-Steel Contacts
Spring Connections
Saving on Current
30 to 50 Per Cent.

HERZ & CO.
55 Grand Street
NEW YORK

35 H. P. Panhard

for sale. Racing body, individual seats, 4 cylinder motor, separated cylinders, Krebbs Carburettor, latest control on wheel; in perfect condition; exceptional bargain. PRICE, $8,500.

SMITH & MABLEY, INC.,
513 Seventh Ave., City.

FLORIST.
CONFECTIONER.
MOTOR MAN.
OFFICE SEEKER.

You can secure at low rent two fine corner stores and several large offices in the automobile, driving and transfer centre of the city at the Uptown Building of the New York AMERICAN.

Entire block, 59th Street and the Circle. Constant throngs make it a most desirable point for you.
Will rent at low figure Inquire on premises, or Room 35, Tribune Building.

AUTOMOBILE INSURANCE

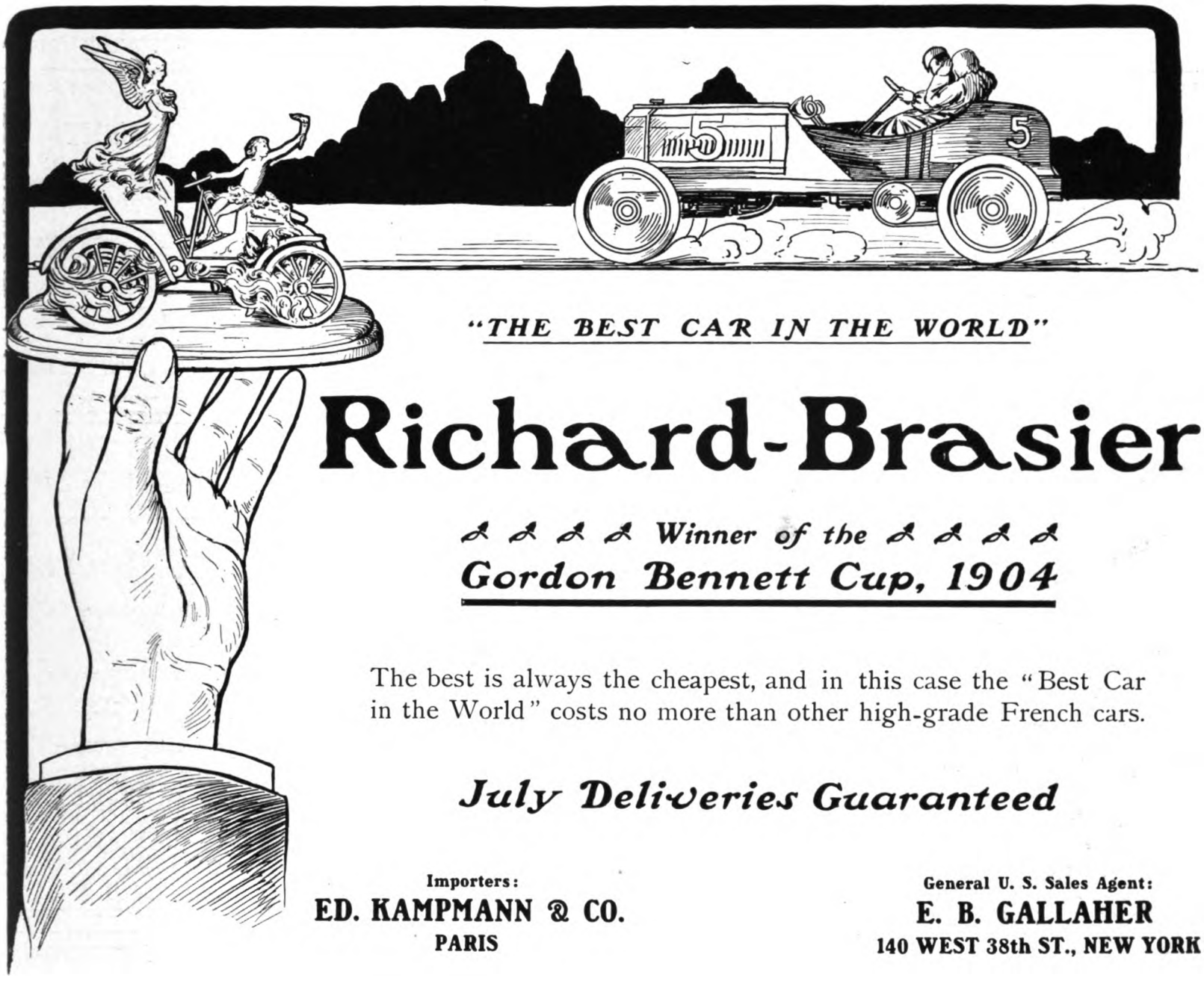
FLOATER RATE 2½% per $100

Anywhere in U. S. or on Coastbound Steamers

Liability Insurance

H. J. SPARKS & CO., 1534 BROADWAY, cor. 45th St., N. Y.

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"THE BEST CAR IN THE WORLD"

Richard-Brasier

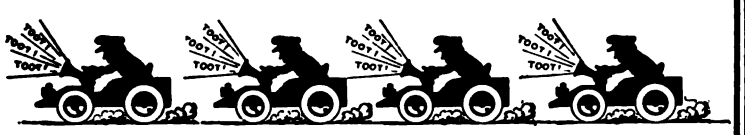
Winner of the Gordon Bennett Cup, 1904

The best is always the cheapest, and in this case the "Best Car in the World" costs no more than other high-grade French cars.

July Deliveries Guaranteed

Importers:
ED. KAMPMANN & CO.
PARIS

General U. S. Sales Agent:
E. B. GALLAHER
140 WEST 38th ST., NEW YORK



Advertising Automobiles in

LIFE

means not only the space that you buy, but also the magnificent follow-up afforded by LIFE'S text pages.

What better stimulus to automobile buying than a double page cartoon:

"The Passing of the Horse"

LIFE, in appealing to its clientele, necessarily deals with the pursuits of the moneyed class.

If LIFE never carried a line of automobile advertising, it would treat of the sport.

BUT—

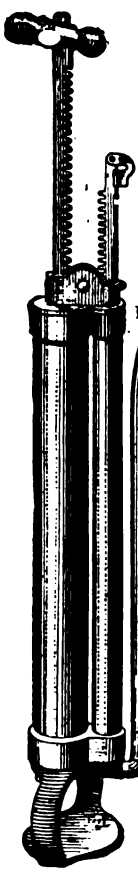
In 1903 LIFE carried more than 24,000 lines of automobile advertising, and its orders for 1904 from automobile manufacturers already total 35,000 lines.

Somebody got something from LIFE in 1903

YOU?

ROBERT FROTHINGHAM,
ADVERTISING MANAGER,
17 West 31st Street, New York.

At Last a Perfect Tire Pump.

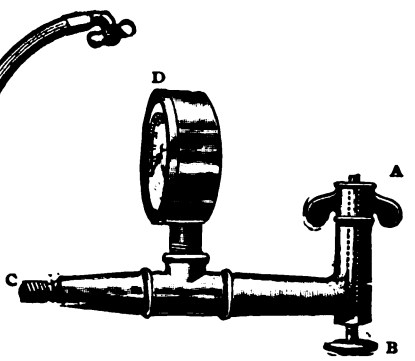


The Excelsior No. 51

DOUBLE-ACTING COMPOUND HIGH PRESSURE

AIR PUMP

PATENTED JANUARY 5 1904.



It is a well-known fact to those having had any experience, that if they puncture a large tire while away on a trip, and though they may properly repair it, no small handy pump has ever been produced that will inflate the tire to the required pressure; as a result, the tire is run sometimes many miles and ruined on account of not being inflated to the required pressure. No pump has ever been produced heretofore that would come anywhere near compressing air to the desired pressure, that can be carried in tool boxes or on a motorcycle, and it will be of the greatest interest to the users of pneumatic tires, especially the large ones, to learn of the NO. 51 DOUBLE ACTING, COMPOUND, HIGH PRESSURE PUMP.

This pump works easily under high pressure, and is simply marvelous in its unlimited capacity and so small that it may be thrown in any tool box or carried on any bicycle. Entire length of pump 20 inches. Weight, complete, 4 pounds. Pressure of 200 lbs. secured with this pump.

Price, $7.50 each. Dealers' Discount on Application.

For full information write to

EXCELSIOR SUPPLY CO.

232-5-237 RANDOLPH STREET, - - - CHICAGO.

Everything for automobile owners and dealers. Write for catalogue.

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SELF-STARTING FROM THE SEAT

Send for Catalogue

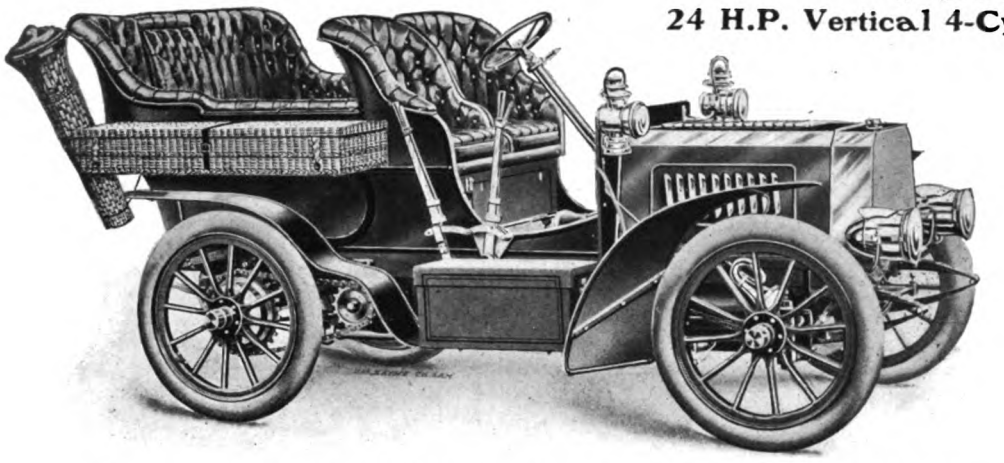
"Matheson"

SILENT
POWERFUL
AUTOMATIC

"America's Finest Motor Car"

$5,000

24 H.P. Vertical 4-Cylinder Engine



DISTINCT ADVANTAGES

Wonderful Power — Self-Starting from Seat

Long Life Without Repairs

Extreme Silence — Absence of Vibration

Automatic Carburetter, never requires Adjustment

Automatic Speed Control by Governor

Automatic Lubrication

Individual Clutch - Transmission, Change-Speed and Clutch combined, never requires adjustment

Single Lever Control — Never-failing Ignition

Irreversible Steering Gear

Particularly Powerful Brakes — Elastic Frame

Roller Bearings — Road clearance 14 inches

Extreme Simplicity and Strength

The "Matheson" Car is designed to compete principally with the very finest and highest priced cars of foreign manufacture—its exceptional quality and superior operation can only be fully appreciated by *actual comparison* with others, part for part, and by *actual road demonstration.* We *guarantee* it unequalled by any other car of like type, regardless of price. This guarantee is based on *eight years'* experience.

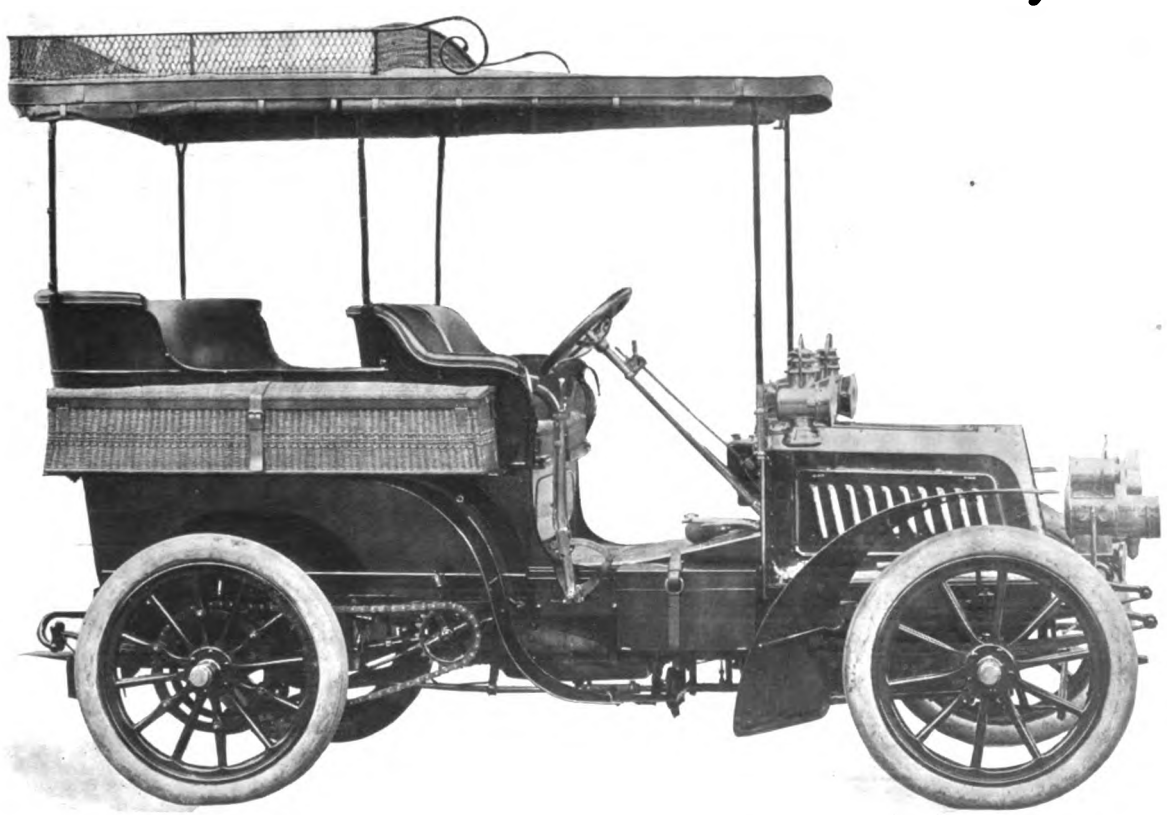
MATHESON MOTOR CAR CO., Ltd., Makers, Holyoke, Mass.

NEW YORK CITY AGENCY: A. ELLIOTT RANNEY, 306 W. 59TH ST.

MEMBER NATIONAL ASSOCIATION AUTOMOBILE MANUFACTURERS

Berg Automobile Company

547 Fifth Avenue, New York City



Selling Agents { NEW YORK: The Rainier Co., 50th Street and Broadway
PHILADELPHIA: H. M. Hart, 1519 Spring Street.
BINGHAMTON: Stirling Motor Car Co., 184 Water Street
CHICAGO: The Dan Canary Automobile Co., 521 Wabash Avenue
DETROIT: W. A. Russell & Co., 248 Jefferson Avenue

Members Association Licensed Automobile Manufacturers

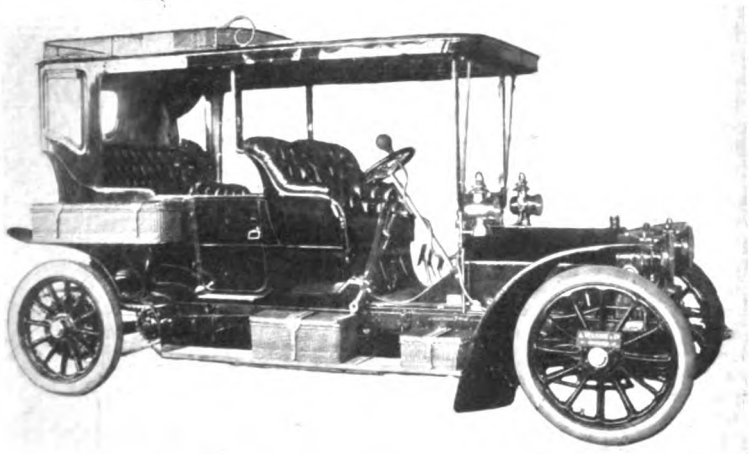
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MERCEDES PALACE—PARIS



C. L. CHARLEY, Paris, 70, Champs Elysees

N. P. Mercedes Palace covers 650 square meters, the big hall can hold 40 and the window 5 cars; the first floor and galleries include a fine reception room, salon Louis XVI, a smoking room, typewriting offices, French, English, German, Russian, Italian and Spanish. Public telephones. Private telephones with the Mercedes Palace, 70, Champs Elysees, and the private apartments, 71, Champs Elysees, etc , etc.



Mercedes 28/32 H. P.



License Certificate No. 50.
FOR
"MERCEDES" SIMPLEX
OF 24 H.P.

This is to Certify that the Mercedes Automobile manufactured by the Daimler Motoren Gesellschaft, of Cannstadt, Germany, the motor of which automobile bears the manufacturer's number 250 has been sold to by C. L. Charley of Paris, under order number 1038 on under the terms and conditions of his contract with the DAIMLER MANUFACTURING COMPANY of New York, owners of the Mercedes patents for the United States and Canada.

This Certificate confers the license to use the above described automobile in the United States and Canada only upon for any other automobile of the same manufacture.

In case of sale of the above described automobile, such transfer to a new owner must be endorsed on the back hereof.

Owners of Mercedes automobiles in the United States and Canada without this license certificate are liable to prosecution according to law.

C. L. Charley President

WARNING !

Every Mercedes car imported to America must bear a licensed tag, accompanied by a certificate of license, of which a fac-simile is given herewith. All infringements will be liable to legal proceedings.

C. L. CHARLEY,

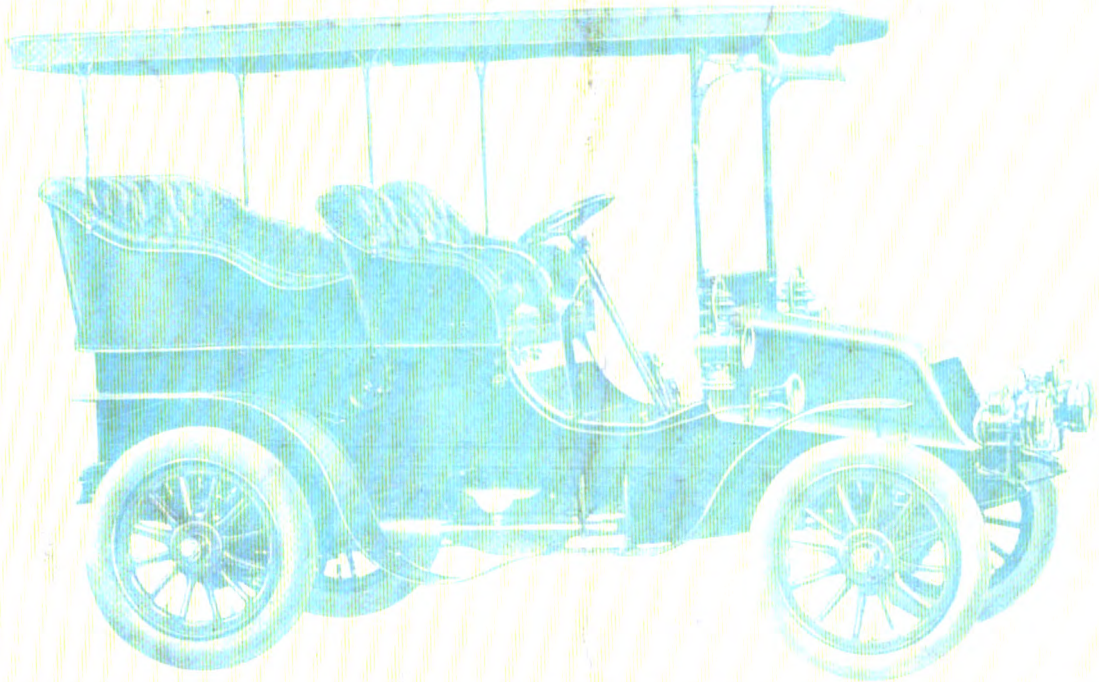
SOLE OFFICIAL AGENT of the "MERCEDES"
Manufactured in Cannstatt

For France, Belgium, The United States of America and Canada

Cable Address
"AMCHARLEY, PARIS"

No. 70 Avenue Des Champs Elysées, Paris, France

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WINTON



"Gentlemen—, The KING"

Behind the fact that the Winton is king of motor cars is our extensive automobile manufacturing experience, coupled with right construction. These make it king.

Cylinders are horizontal, because horizontal cylinders are unequalled in speed and power. Mechanism is easily understood: to operate the Winton one need not have a mechanical education. Air-governing system is simple and absolute, assuring you ease of mind and safety. And the price—$2500—is right. You always pay for what you get—pay other than Winton price and you will not get Winton quality. Winton literature is interesting.

The Winton Motor Carriage Co.

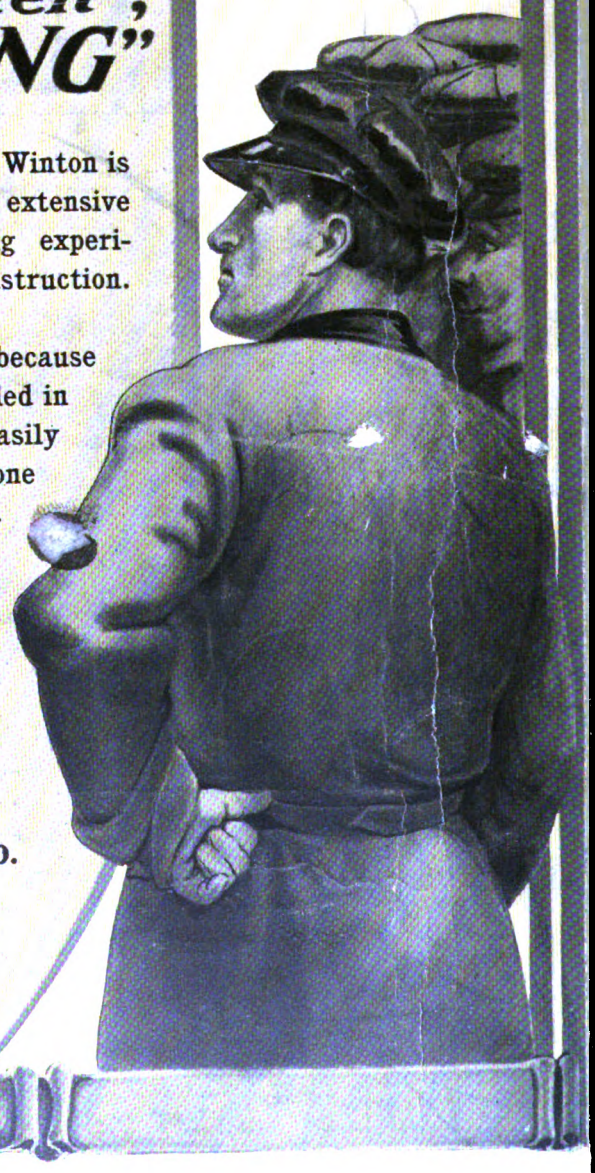
Factory and General Offices

CLEVELAND, OHIO, U. S. A.

New York — Philadelphia
Boston — Chicago

Winton Agencies in all important places.

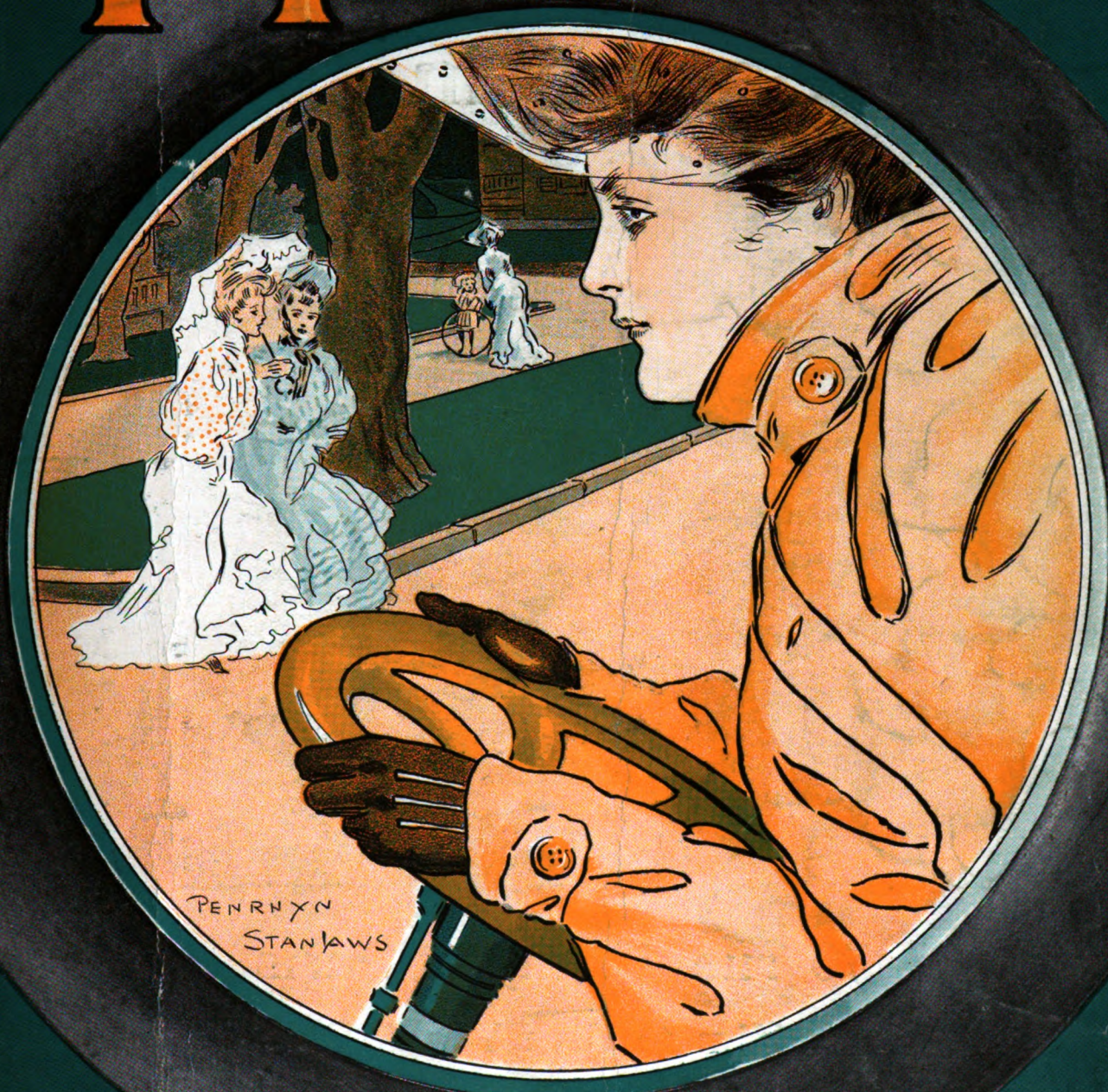
Member Association Licensed Automobile Manufacturers



THE CAREY PRESS, NEW YORK.

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MOTOR



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If You Go

Touring in Europe

Don't Fail To Call On

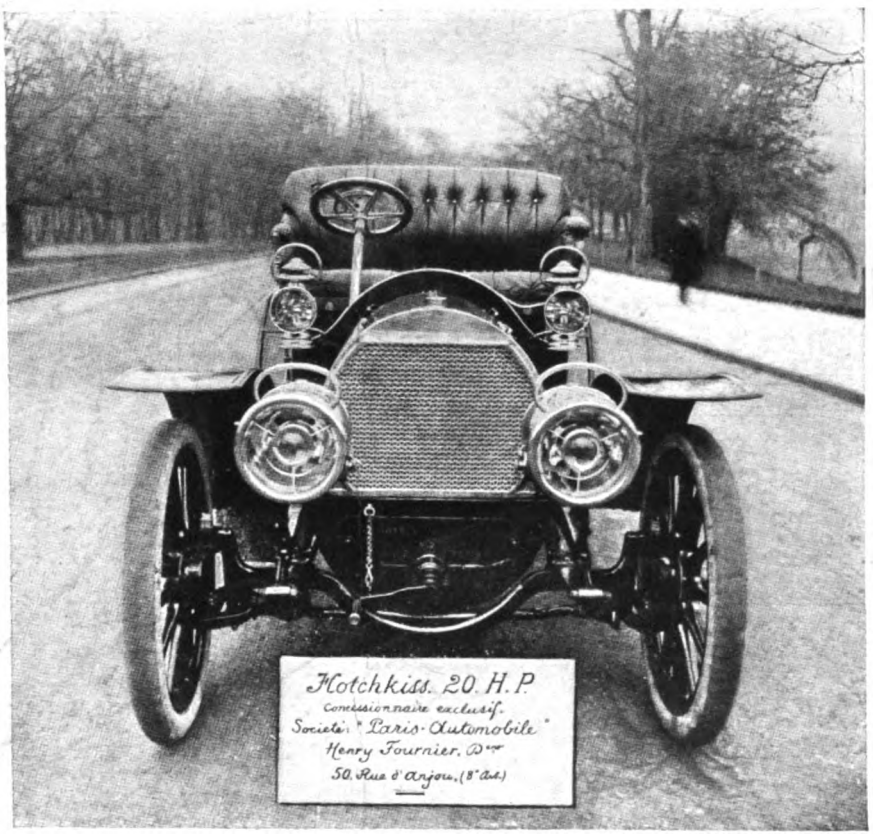
MR. HENRY FOURNIER



Champion of the World

MANAGER OF THE

Largest Garage in the World



50 rue d' Anjou, Paris

And Ask Him to Give You A Ride On A

HOTCHKISS

Built Like A Gun

By Gunmakers

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THE FIRST AMERICAN



Smith & Mabley Simplex Automobile

THE FIRST PRODUCT OF AN AMERICAN FACTORY WORTHY OF THE NAME OF AN

AMERICAN AUTOMOBILE

Send for Catalogue

Smith & Mabley,

INCORPORATED

513 - 519 Seventh Ave.

NEW YORK N.Y.

(Members of the Ass'n of L.A.M.)

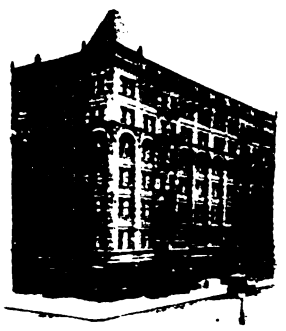
MOTOR

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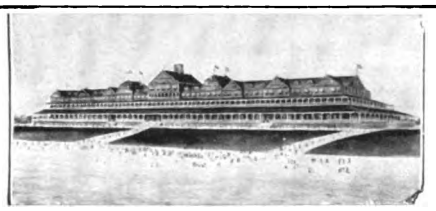
MOTOR HOTEL DIRECTORY—WHERE TO STOP WHEN ON THE ROAD



Durando's Hotel—a favorite resort of motorists. North end of Speedway and Dyckman street, New York, on the Harlem River. Be sure to take this trip, which is one of the finest about New York, extending along the famous French Boulevard and overlooking the Hudson for several miles. Motorists receive special attention. Route—French Boulevard to Dyckman street (Fort George) and to Durando's.



The criterion of good hotel service is to be had at the Criterion Hotel, Broadway and 41st Street, New York City. "Handy to everywhere." The cuisine of the hotel is of the best and is table d'hote and a la carte, with music. European plan. Rooms $1 per day and upward. Special attention paid to motor parties. G. T. Stockholm, proprietor.



LONG BEACH HOTEL. Long Beach, L. I. The ideal automobile ride along the famous Merrick Road. The hotel faces the ocean and has the best cuisine on the island. Equipped with a complete garage. Supplies, storage, repairs, electric charging. Roads leading to the hotel are the best in the country. See route in Motor Book.



THE TEN EYCK, Albany, N. Y.—Only fireproof hotel in the Capital City. Conducted on the European plan. Most attractive hotel in New York State. Near State Capitol and other public buildings and places of interest. A delightful home for those wishing to spend some time in this interesting and historic city. H. J. Rockwell & Son.



HOTEL BELLECLAIRE, Broadway and 77th Street, New York City. Luxurious Rooms for Permanent and Transient Guests. Restaurant a Feature. Exquisite Palm Room. Art Nouveau Cafe. Royal Hungarian Orchestra. "Most Artistically Beautiful Hotel in the World." Every improvement known to modern ingenuity. Write for our magazine, *"The Hotel Belleclaire World."* Can offer few single rooms, with bath, beautifully furnished, suitable for two people, $60 per month. MILTON ROBLEE, Proprietor.



NEW DORP BEACH HOTEL, NEW DORP BEACH, STATEN ISLAND, N. Y.—Headquarters Richmond County Automobile Club. The hotel is a concrete structure, fireproof; is modern in its appointments, and is situated on the shore. ROUTE: Staten Island Ferry; then by way of Boulevard to New Dorp Lane; then east to Beach. Edward Hett, Proprietor.



BAYSHORE HOUSE, City Island, New York City. The oldest and best house on the island. Noted for its famous shore dinners. All motorists know the way to Flynn's House. Faces the bay. The coolest summer resort in New York. Launches, sailboats and rowboats. Tel. call 23 City Island. E. Flynn, Proprietor.



NELSON HOUSE, Poughkeepsie, N. Y. Largest and best equipped hotel in the city. Accommodations for automobiles in immediate vicinity, where all supplies may be secured and repairs made by expert mechanics.

The Nelson House is located on Market street, the main road (Old Post Road) between New York and Albany. Special attention given to auto parties. Suites with baths reserved by telephone.

HORATIO N. BAIN, Prop.

ALBANY, N. Y.—Keeler's Hotel.
ALBANY, N. Y.—Stanwix Hall.
ALBANY, N. Y.—Ten Eyck.
AMAGANSETT, L. I.—Sea View House.
ASBURY PARK, N. J.—Ocean House.
ATLANTIC CITY, N. J.—The Gladstone.
ATLANTIC CITY, N. J.—Hotel Chetwoode.
ATLANTIC CITY, N. J.—The Rudolph.
BATAVIA, N. Y.—Hotel Richmond.
BATH, STEUBEN CO., N. Y.—Messerschmitt's Hotel.
BEDFORD, PA.—Bedford Springs Hotel.
BEDFORD, PA.—Hotel Waverly.
BEDFORD, PA.—Bedford House.
BELLPORT, L. I.—Wyandotte.
BOSTON, MASS.—Hotel Somerset.
BOSTON, MASS.—The Berkeley.
BRETTON WOODS, N. H.—Mount Pleasant.
BRETTON WOODS, N. H.—The Mount Washington.
BUFFALO, N. Y.—Hotel Breezel.
BUFFALO, N. Y.—Mansion House.
CALDWELL, N. J.—Monomonock Inn.
CHICAGO, ILL.—Edinburgh Hotel.
CHICAGO, ILL.—The Stratford.
CHICAGO, ILL.—Victoria Hotel.
CHICAGO, ILL.—Lexington Hotel.
CHAMBERSBURG, PA.—Hotel Washington.
CINCINNATI, OHIO.—Grand Hotel.
CLASON POINT, N. Y.—The Inn.
COLUMBUS, OHIO.—Chittenden.
DELAWARE WATER GAP, PA.—The Glenwood.
DELAWARE WATER GAP, PA.—Water Gap House.
DETROIT, MICH.—Hotel Metropole.
EASTON, PA.—Paxinosa Inn.
EAST ST. LOUIS, ILL.—Royal Hotel.
ELYRIA, OHIO.—Andwur.
ERIE, PA.—Reed House.
FREDERICKSBURG, MD.—City Hotel.
FLORIDA, N. Y.—Glenmere Lake Hotel.
FRONTENAC, N. Y.—The Frontenac.
GANANOQUE, ONT.—The Inn.
GETTYSBURG, PA.—Eagle Hotel.
GREENFIELD, MASS.—The Devens.
GREAT BARRINGTON, MASS.—Berkshire Inn.
HARRISBURG, PA.—Lochiel.
JACKSON, N. H.—Glen Ellis House.
KENNEBUNKPORT, ME.—Oceanic.
LARCHMONT, N. Y.—Blossom Heath Inn.
LAKE MAHOPAC, N. Y.—Dean House.
LEXINGTON, N. Y.—O'Hara House.
LENOX, MASS.—Hotel Aspinwall.
LIMA, OHIO.—Lima House.
LONG BEACH, L. I.—Long Beach Hotel.
MAGNOLIA, MASS.—The New Magnolia.
MAGNOLIA, MASS.—The Hesperus.
MARION, MASS.—The Sippican.
MILLBROOK, N. Y.—Halcyon Hall.
MILLBROOK, N. Y.—Millbrook Inn.
MORRISTOWN, N. J.—Mansion House.
MORRISTOWN, N. J.—United States.
MT. ARLINGTON, N. J.—Hotel Breslin.
NARRAGANSETT PIER, R. I.—Atlantic House.
NIAGARA FALLS, N. Y.—Tower Hotel.
NASHUA, N. H.—Tremont House.
NEWBURG, N. Y.—Palatine Hotel.
NEW HAVEN, CONN.—Hotel Garde.
NORTH WATER GAP, PA.—Cataract House.
OCEAN GROVE, N. J.—Alaska House.
OCEAN GROVE, N. J.—The Mulford.
OWEGO, N. Y.—The Ahwagu.
PHILADELPHIA, PA.—The Lorraine.
PHILADELPHIA, PA.—Windsor Hotel.
PHILADELPHIA, PA.—Lorraine.
PHILADELPHIA, PA.—Hotel Vendig.
PINE HILL, N. Y.—Cornish House.
PINE HILL, N. Y.—The Alpine.
PINE HILL, N. Y.—The Winterton.
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There are two sections to every magazine—the editorial and the advertising. Neither is more important than the other. The reader buys a magazine for the interest which the editorial section has for him, and he expects the advertising section to be an *information bureau* of his needs.

The advertising pages of this issue of MOTOR should be as carefully read as the text pages, because they are its readers' *information bureau*. If you wish to buy a motor-car, you will find the standard makes advertised in MOTOR. If you wish tires, lamps, motor-car accessories, etc., etc., you will find only the standard makes of anything represented in MOTOR's advertising pages.

Never hesitate to write to advertisers for more complete information than the advertisements contain. You incur no obligation, if you do. And when you do, kindly mention MOTOR.

For information about anything not in MOTOR,, write us and we will see that you are informed.

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WHICH IS WHICH?

Here are 12 standard makes of motor-cars. Can you name them? In order that a novice may be on an equal footing with an expert, we have selected only those cars of which there are pictures *with names* in the advertising columns of this issue—thus making the solution simple *for the careful observer.* The September issue of MOTOR will have another puzzle.

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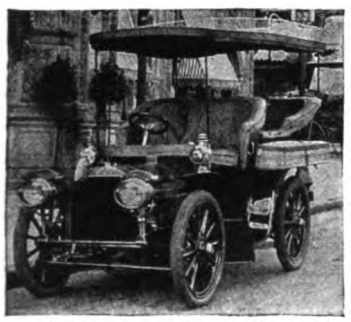
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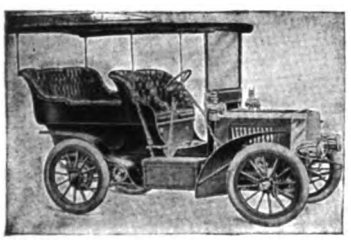
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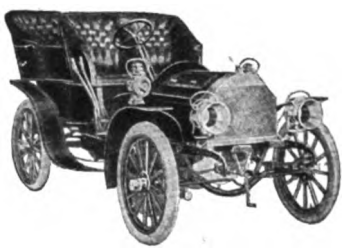
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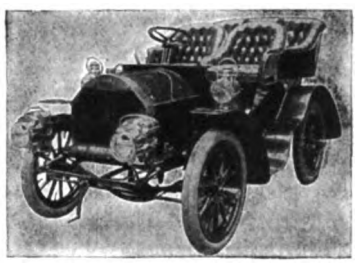
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After having indicated the name of each car in the slip on this page, i. e.—

No. 6—Winton,

tell in 25 words or less which of the 12 cars you prefer, and why.

The first prize—a $100 searchlight—will be awarded to the person sending a correct solution and, in the opinion of the Puzzle Editor of MOTOR, the best article; the second prize for the second best; etc.

You may send as many different sets of answers as you like, but each must be on a separate slip cut from MOTOR'S puzzle page. The same article may be used in each answer.

Mail the letter containing your solution of the puzzle so that it will reach MOTOR'S office not later than August 22d. For the names of successful contestants see September MOTOR.

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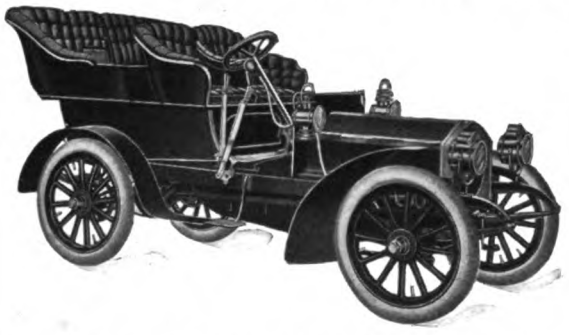
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A Monthly Magazine Devoted to Motoring of All Kinds.

Published by Star Company
NEW YORK BOSTON CHICAGO SAN FRANCISCO

Entered as second-class matter at the New York, N. Y. Post Office, March, 1904.

New Principal Address, 1789 Broadway, New York

Branch offices: Chicago, 214 Madison Street; San Francisco, Hearst Building, Market Street; Los Angeles, Examiner Building; Boston, 82 Summer Street; London, 5 New Bridge Street, Ludgate Circus, E. C.; Paris, J. J. Conway, Hotel Continental.

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Subscription Three Dollars ($3.00) Per Year.
Cable Address: Motoria *Telephone: 3900 Columbus*

Postage free in the United States, Canada, Mexico, Hawaii, Porto Rico and the Philippines. Postage to other countries, $1.00 per year extra. Address business communications and make checks payable to MOTOR. Anything connected with the editorial department should be addressed to the editor.

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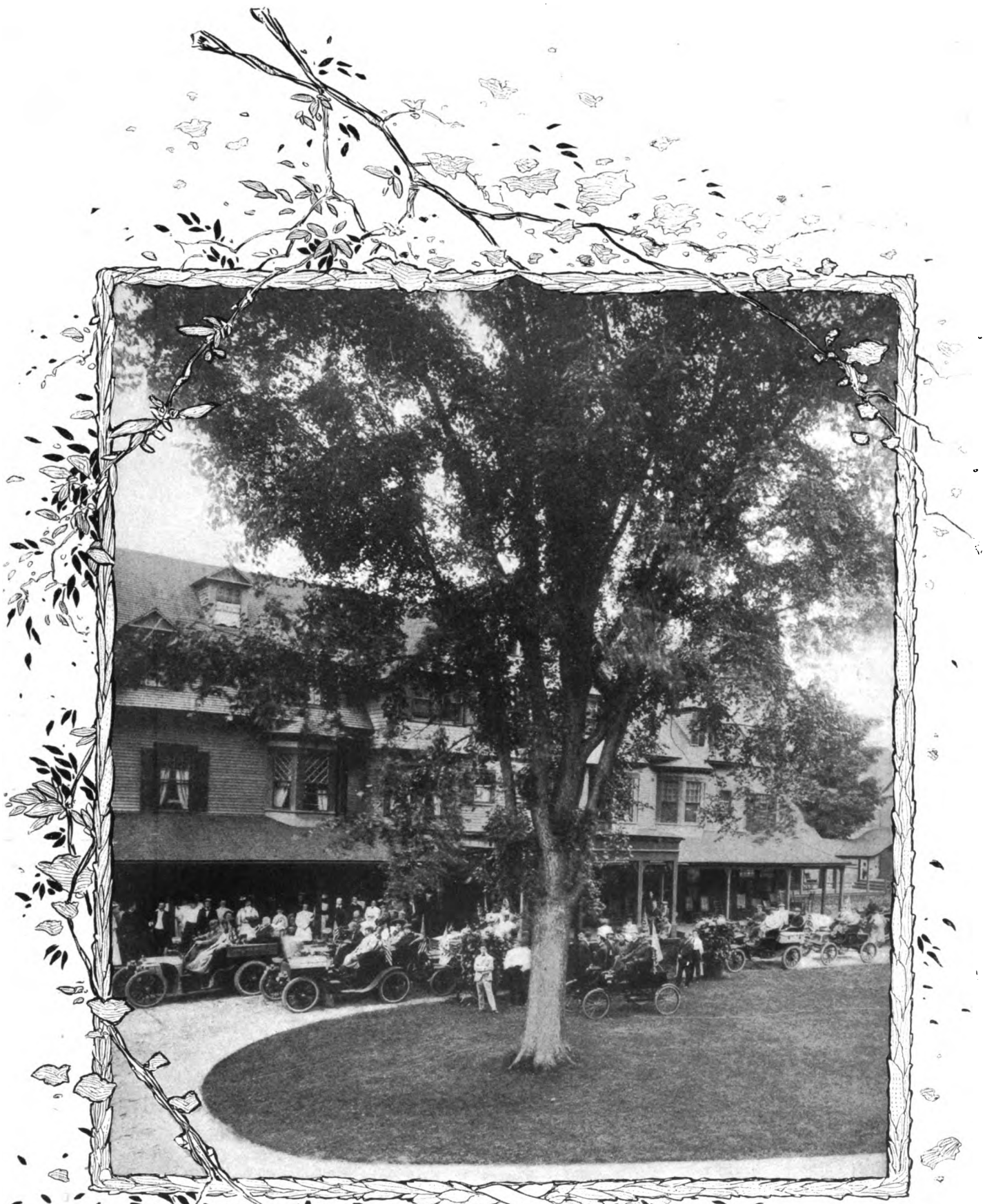
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A MID-DAY STOP AT A
WHITE MOUNTAINS INN

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M O T O R

DEVOTED TO MOTORING OF ALL KINDS

Vol. 2. No. 5 **AUGUST, 1904** **Price, 25 Cents**

THE GREAT FUTURE OF THE MOTOR CAR

By Mayor Tom L. Johnson, of Cleveland

In the beginning, I looked upon the motor car as a toy, but my admiration for this means of locomotion grew with the development of the art.

It is now a part of my daily life, and I have given up horses entirely, not only using the touring car for business, but for recreation as well.

High speed does not appeal to me, and I think scorching, both in the country and city, is to be frowned upon, for it annoys a great many people who ought to be friendly to the motor car.

It is my belief, however, that this evil will disappear, and harsh legislation against it will be found unnecessary, as was the case with bicycling, which, in its early stages, was largely a fad. Now people rarely suffer any inconvenience from bicycle scorching, for this has adjusted itself, and the bicycle, at present, is a useful tool in the hands of a great many people and a pleasant pastime for others.



MAYOR TOM L. JOHNSON AND HIS SON (AT THE WHEEL) IN THEIR WINTON

The motor car has a broader field, and is susceptible of a very much wider range of usefulness.

So far the development has been largely along the line of the touring car, but a greater field of utility will be found in commercial work; and a still broader one when its development reaches a degree of perfection and economy of construction that will permit its use by farmers, for a simple and low-priced wagon will be greatly desired by the rural community.

This will overcome the prejudice of farmers and gain their influence for better roads. The side-door touring car is taking the place of the one with the awkward hearse-like rear entrance. The need for high-grade carriage construction is now being so rapidly supplied that all further excuse or necessity for closed vehicles, drawn by horses, will disappear.

The motor car, properly handled, is now safer and more convenient than animal power, even at double the speed.

The range of distance for pleasure driving is five times as great as we could ever hope for with horses, and, while they will not disappear from the city or the farm, a great bulk of the work heretofore done by them will be performed by mechanical power.

The owner who is not himself the operator of a touring car loses nine-tenths of the pleasure that is to be derived from an automobile, and, for this reason, manufacturers should aim at great simplicity, as the more complicated the control the greater the demand for an expert driver.



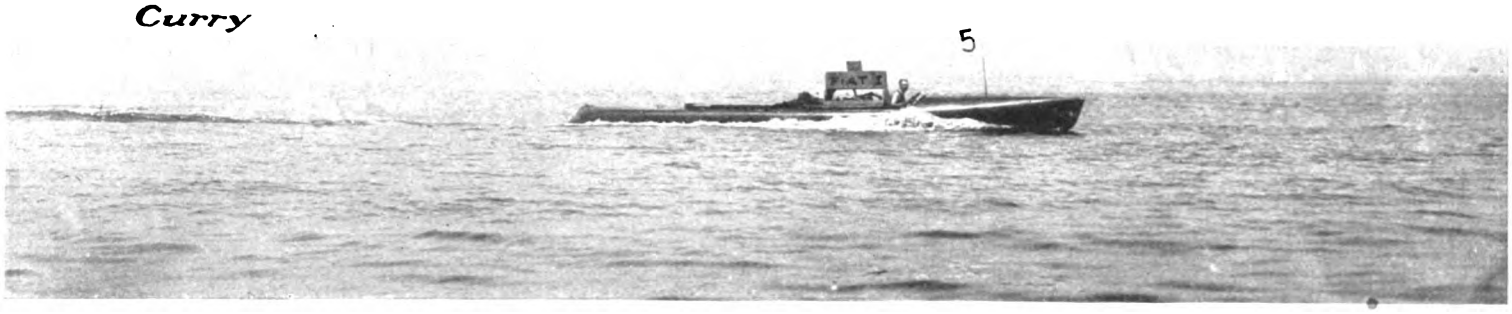
WHERE SPEEDING IS LEGAL, THOUGH DANGEROUS

The complaint that motor cars are handled by inexperienced and reckless drivers arises from an evil that will, I think, cure itself. The risk that owners take when motor cars are badly handled of having damage bills to pay will secure, to the general public a high grade of skill in driving, and it seems to me unnecessary to attempt by regulation, examination, and license to overcome this difficulty. When manufacturers produce a simple device and operators exercise care in handling, restrictive legislation will be unnecessary.

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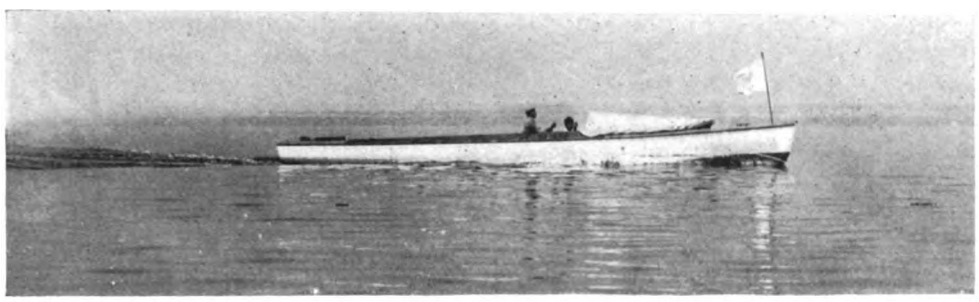
A Resume of Motoring Afloat

By Duncan Curry



While it is, perhaps, a trifle early in the season to predict the outcome of the present motor-boat enthusiasm, enough has been seen to show that the majority of boats thus far exhibited, so far as speed is concerned, fall short of the hopes of their owners and designers.

Too much power on too short a water line probably explains the poor showing of some of the boats, but faulty design of hull and engine and match-box construction is in no small measure accountable for the lack of speed contained by many of the boats.



E. S. WEBSTER'S AUTOWIN, WHICH DID WIN TWICE AT MARBLEHEAD

While there can be no question that ultimately when the present speed craze has died a natural death, the automobile engine, on account of its great power, light weight, reliability, and comparative cheapness, will fill a long-felt want on power craft.

One cannot but regret, however, that the more general adoption of the auto engine for marine purposes has been seriously retarted through the ill-advised claims of phenomenal speed for this type of motor by people who knew nothing about boats or the water and cared less, so long as they were able to make a sale.

Last winter, these same people, before a hull was launched or an engine built, flooded the daily papers with stuff about 28- or 30-knot boats. This would not have been so bad had they not gravely added that this speed would be made by boats of from 20- to 40-foot water line. Perhaps, at some future date, a boat of this length may make some such time, but if it ever does yacht designers and motor builders will have to master several problems as yet unsolved. Some of the motor boat advocates, on account of their success on land, completely overlooked the fact that small boats using steam for power had made fast time before the gasoline engine was ever heard of, and that the chief claim for the auto engine is not that it gives more power or produces more speed than steam, but that it weighs less per given horsepower, occupies less space than the reciprocating engine, and is cheaper, cleaner, and more satisfactory in every way. So far as speed is concerned, way back in 1890, or fourteen years ago, the writer covered a mile on a steam-driven launch in 2 minutes flat, or at the rate of 30 miles per hour, and the boat only measured 60 feet. on the water line.

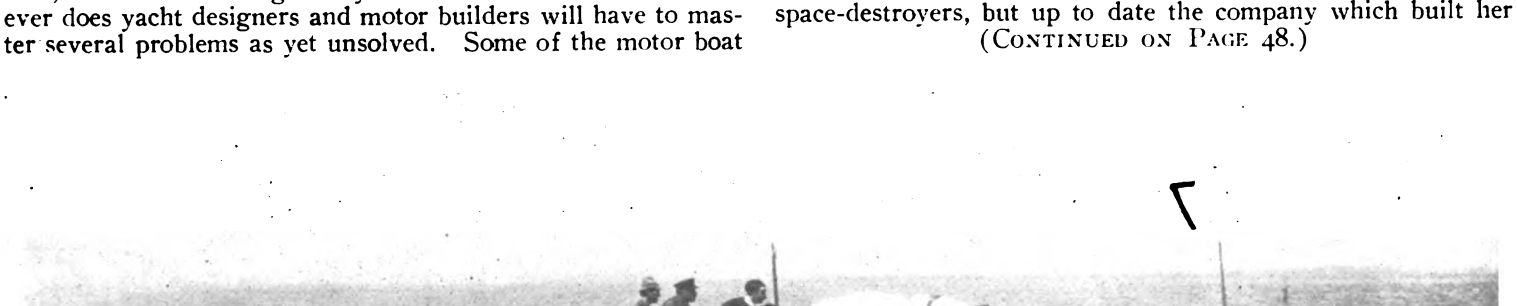
This boat, which was called the Norwood, was owned by the late Norman L. Munroe. She was fitted with a tiny triple expansion engine and water tube boiler designed by Charles D. Mosher, of New York, who afterward designed the record-breaking Arrow, which is credited with covering a statute mile in 1.20. The Norwood's record was made over a measured mile off Bay Ridge, and the trial was witnessed by hundreds of spectators, so there can be no question about the accuracy of the distance or timing. Of course, the Norwood was something of a freak, but no more so than the Fiat, Challenger, or Hard Boiled Egg.



J. S. HUDSON'S SAFHO, A DISAPPOINTMENT AT THE MARBLEHEAD RACES

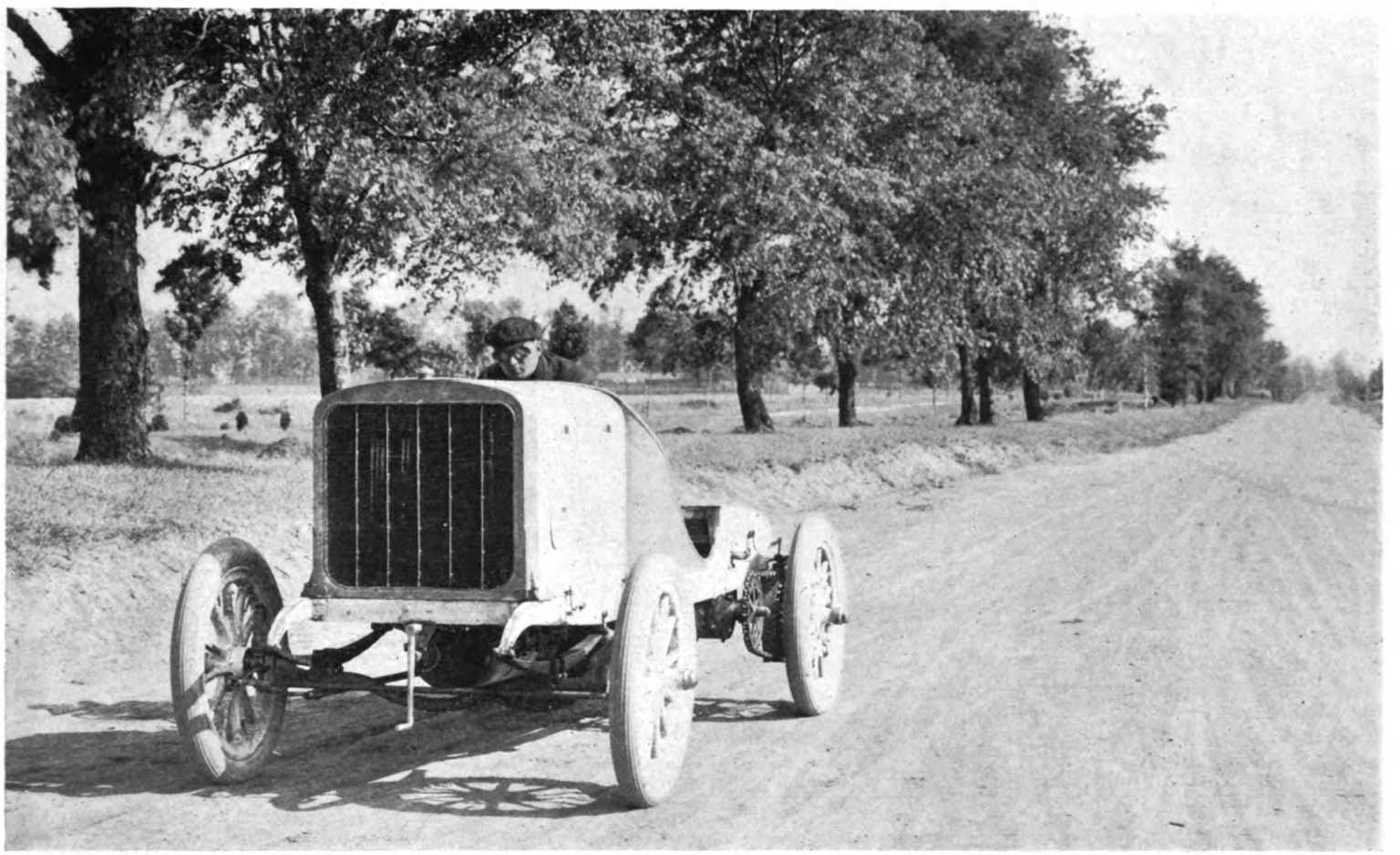
So far as the actual speed results of American designed motor boats, judging by their performances, the Standard, a 55-foot, 110-horsepower boat, which came out last season, seems to have done by far the best work of any of the new space-destroyers, but up to date the company which built her

(CONTINUED ON PAGE 48.)



H. L. BORDEN'S MERCEDES, CREDITED AT MARBLEHEAD WITH ASTONISHING SPEED AGAINST THE WATCH

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SUMMER MOTORING AT HIGH SPEED: JOHN T. FISHER AND THE 60-H.P. POPE-TOLEDO RACER



WINTER MOTORING AT NIAGARA: AN INVITING ICE BRIDGE PARTY OF LAST JANUARY

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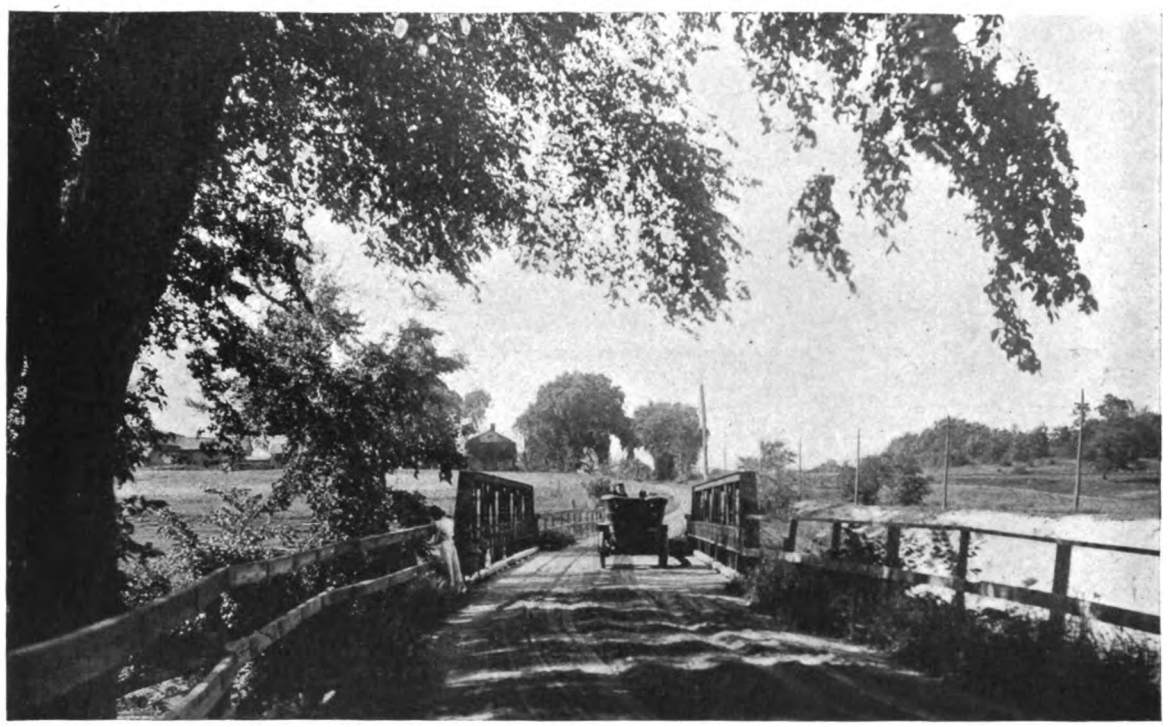


The State of Connecticut, one of the thirteen original colonies that defied Great Britain, affords the motorist many picturesque drives, and has much that may gratify his sentiment. Touring in the Nutmeg State is by no means monotonous, for there is much to offer in the way of variation. Now the route is along the shore roads, commanding a good view of the Sound; now it is among the green fields of the country districts; again, it may be above the outstretched plain, where a good view of the rolling valley below is to be had; then it winds among the green fields of growing tobacco that ere long will be offered for sale in the shape of cigars; next it follows over an old, antiquated, covered bridge, a species almost extinct, and now it takes one to the thrifty little city, producing no end of useful productions, from a brass pin to a full-fledged motor car with its enormous horsepower.

To him who will leave his own native State and pass through the "land of steady habits," much is offered. The highway throughout Connecticut is in very good condition, in most instances as smooth as a floor, and, if one is in the unsettled country, he may gratify that appetite for speed if he is watchful of the ambitious country constable. If he is not, a fine will result. Although the State is more or less of a hilly inclination, a good car has nothing to fear from this source.

Assuming that the motorist is leaving New York, we will follow the main route to Boston by way of New Haven and Hartford to Springfield. The road from Greenwich to New Haven is along the shore, and is as level as a floor, and from New Haven to Hartford, with one or two exceptions, it is the same. From Hartford to the State line the same is quite true. Owing to the earnest efforts of the State Highway Commissioner, the country sand roads are fast being converted into smooth stretches of macadam. From Hartford to the State line the route passes through the tobacco-raising region. From the State line the towns occur in the following order: Greenwich, Stamford, Darien, South Norwalk, Westport, Bridgeport, Stratford, New Milford, New Haven, Wallingford, Meriden, Berlin, New Britain, Hartford, Windsor, Windsor Locks, Suffield, Thompsonville, Warehouse Point, East Windsor and East Hartford. The towns of Stratford and South Norwalk are devoted to manufacturing, as is Bridgeport, which, by the way, is the home of the Locomobile. The sewing machine and the celebrated Barnum's circus also claim homage as well. There are many pretty parks in Bridgeport.

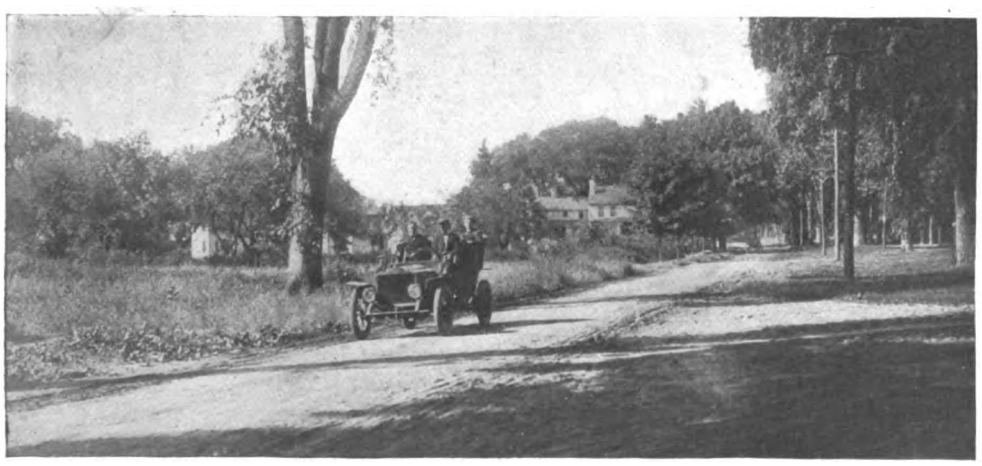
The run to New Haven along the shore road is very pretty, and passes some of the finest resorts in the State. New Haven is the next important city along the route. The celebrated "Winchester rifle" of the old pioneer days, as well as the Marlin, is manufactured here. Numerous other manufacturing pursuits abound.



A STOP ON THE BRIDGE WITH A DOUBLE PURPOSE.—See next page.

From New Haven the route develops an inland tendency, and the tourist no longer sees the "briny salt," but, rather, the waving fields of corn and other garden truck upon which the natives depend for a living. Meriden is the next stop, and, not unlike its predecessors, is a manufacturing town. New Britain is the next goal along the route, and is another manufacturing town. Various kinds of hardware, as well as the Corbin four-cylinder, air-cooled car, are made here.

Hartford, the capital city, is a point of importance, and is usually the stopping over place for New York and Boston tourists, the accommodations both for owner and machine being ample. Hartford is one of the early settlements of Connecticut, and was begun in 1635. It is a manufacturing and insurance center. It is quite possible that one could secure in the Nutmeg capital a new car the equal of his ideal, if he seeks such. The "Chicago-Record Columbia" is constructed here, as are the many Pope products. One may see the motor car in the crude state, and follow it through the various stages of completion until it becomes the fine finished product. The Hartford tire is



A ROAD WORTH RIDING OVER IN EAST HARTFORD

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A BIT OF REAL COUNTRY ROAD NEAR EAST WINDSOR

made here, as are the many other numerous fittings for the motor car, such as the Billings steering knuckles and cranks, and the Veeder odometers. The celebrated "Colt Six-shooter," about which almost every American schoolboy has read; the American Maxim, and the old reliable Gatling gun are products in which the people of Hartford take pride. Numerous other manufacturing interests give employment to thousands. It is said that for its size the city of Hartford does more insurance business than any other city in the world. The State capitol building is well worth inspection.

The motorist has the choice of two routes in leaving the city, one called the east and the other the west. Many concede that the east is preferable to the west. Assuming that the east route is to be taken, the city is left by way of Morgan street, across the Connecticut river, to East Hartford Center, taking the north road and following parallel the trolley tracks due north. As there are many crossroads that might possibly deceive the tourist, he has only to keep alongside the trolley tracks until he reaches the State line. The east route follows through the towns of East Hartford, South and East Windsor, Warehouse Point and Thompsonville. The river may be crossed at Windsor Locks and Thompsonville. If the west route is taken from Hartford, one has to pass through Windsor avenue into the old town of Windsor, an historical old town, settled by Massachusetts colonists in 1637. A fine stretch of macadam is afforded through the town. From Windsor Center one must take the road which breaks off to the left, and thence down under the railroad bridge. Here the road passes over the Farmington river, at which point it is bridged by one of those old, antiquated, covered affairs which is probably the last of its kind existent. Now the road is very good, over a nice stretch of macadam, and before long one finds himself amid the wilds high enough to command a good view of the surrounding country. The road now follows the Connecticut river until the town of Windsor Locks is reached, and for a good part of its length is overhung with willows, supplying a very picturesque scene. Now the town of Windsor Locks looms into view. Its name is derived from the fact that in the early days of river transportation a canal passed through it and supplied power to the neighboring mills as well. The principal industry is the manufacture of paper. Speeding along, one soon approaches the town of Suffield, where he may have an opportunity of seeing tobacco as it is raised under canvas. Suffield is the last town in Connecticut, on the west route.



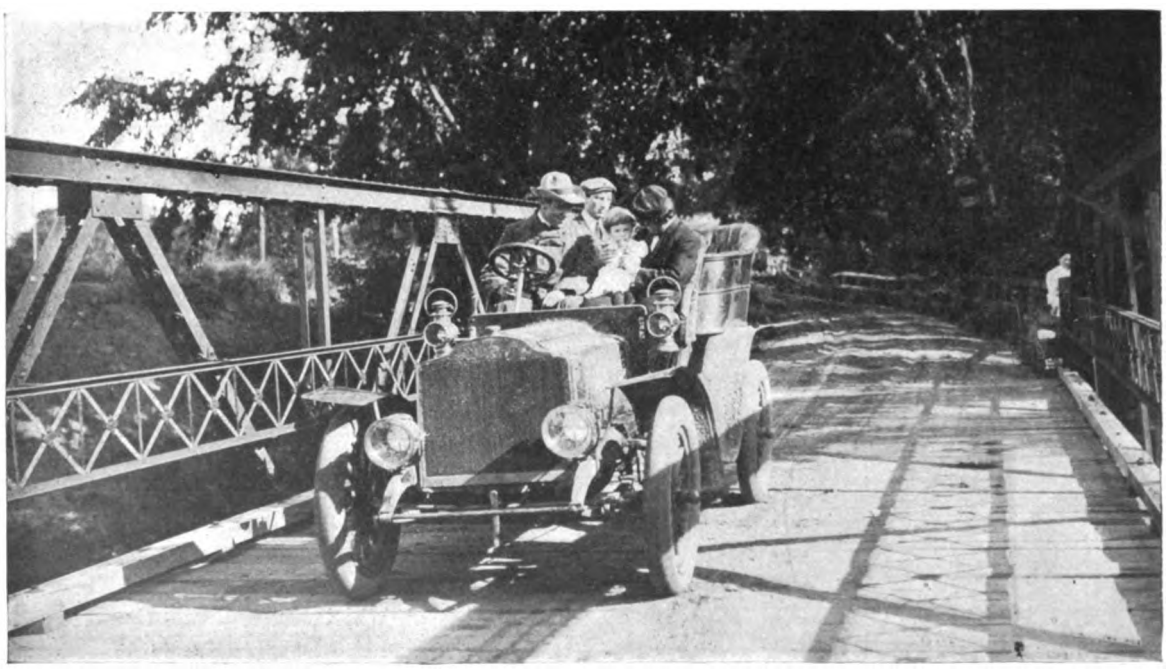
WHAT LIGHTNING DID TO ONE CONNECTICUT TREE

As Hartford is the center of the State, it may be well to outline a few good, short runs. From Hartford to Manchester, a trip of ten miles over some real good roads takes one through some pretty country. Hartford to Middletown, a distance of eighteen miles, affords a very good highway, and as the road is more or less elevated it is quite picturesque, a view of the Connecticut river being afforded nearly all the way. Middletown is a manufacturing town in which the Graham-Fox car, formerly of New York, is built.

The run from Middletown to the shore by way of Haddam and Chester takes one through some fruitful country, through the Connecticut valley, although the roads are in some places poor. The run along the shore is over some fine roadway, and is a pleasant ride.

There are numerous other runs from Hartford, the roads mainly being in excellent condition. In conclusion, it may be well to state that gasoline and other necessities are obtainable most anywhere throughout the State, and someone is always ready and willing to di-

(CONTINUED ON PAGE 60.)



CHAUFFEUR "EDDIE" BALD GIVING A "COLUMBIA" RIDE TO A FUTURE MOTORIST

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From Glasgow to London via East Coast Route.

BY AVANT COURIER

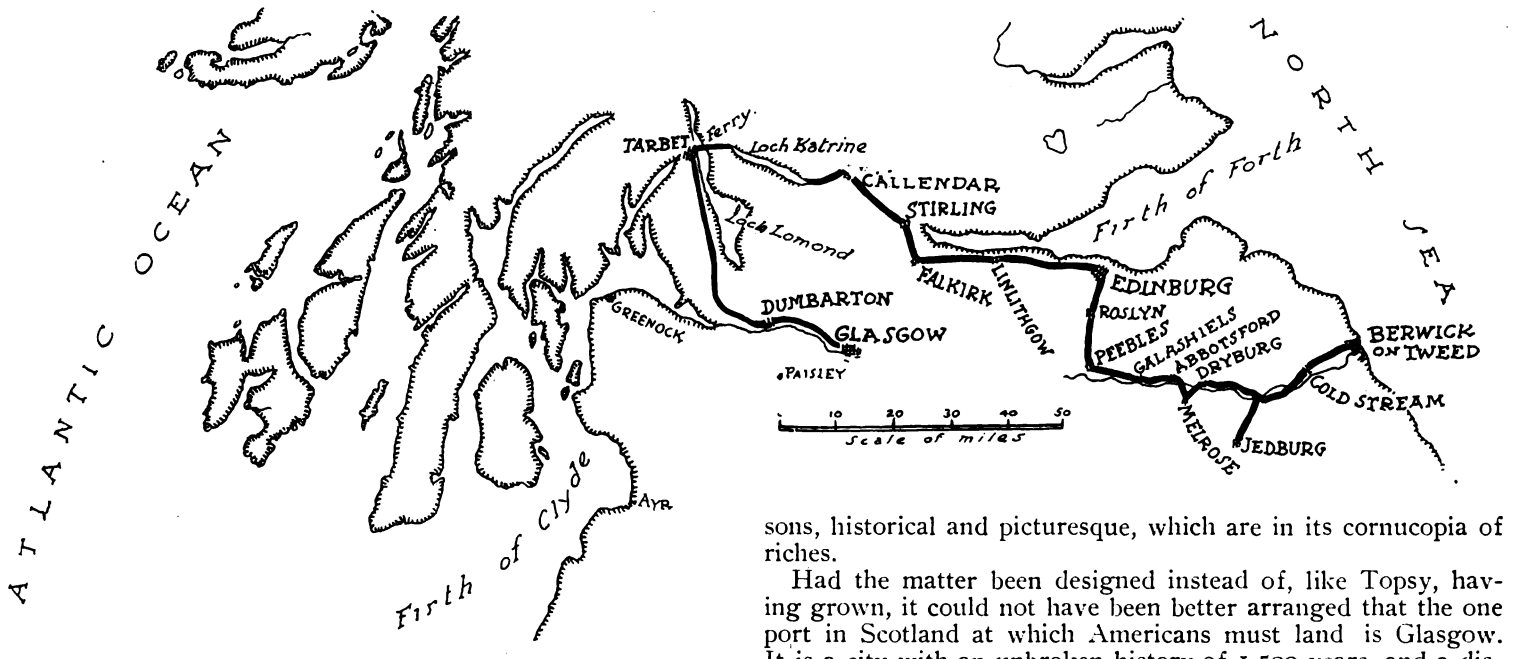


To commend the east-coast route for a motor car from Glasgow to London may, at the first blush, seem a paradox, for Glasgow is on the western or Atlantic seaboard and the east-coast road is along the margin of the opposite sea. Yet a momentary consultation of the map will show that it is a perfectly natural route, for although Glasgow is on the western seaboard, it is only eighty miles, as the crow flies, from Edinburg, which is on the eastern bordering ocean; and the route from thence to London is almost in a direct southeastern straight line. Where the mental confusion momentarily comes in is that we forget that England, Wales and Scotland form almost a triangle and that Scotland is the apex of the pyramid. It is only eighty miles from the western to the eastern sea where we start, but it is more than 500 miles from London on the eastern sea to the western Atlantic coast on the same parallel.

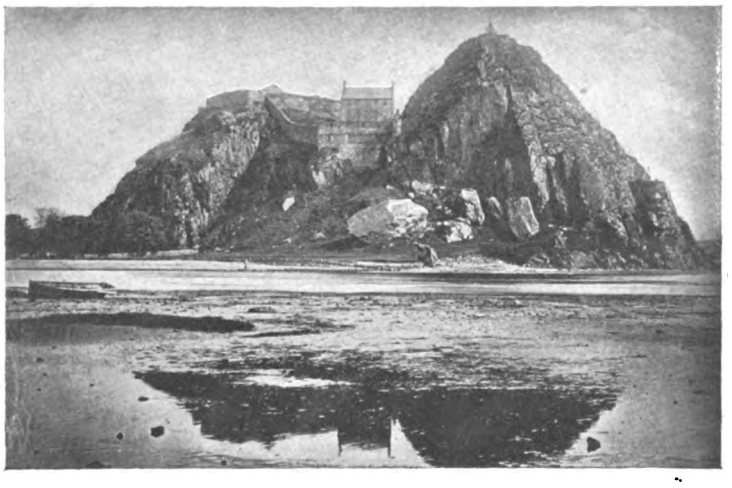
Not only is it the natural route, but it is the imperative one, for what citizen of the world, much less an American landing from his steamer at the very foot of the shrine of the "Wizard of the North," Sir Walter Scott, could be recreant enough to turn away from his shrine? 'Tis against human nature, for the spirit of the master magician permeates the very atmosphere, from the moment one sights Bromilaw Bridge, which crosses the Clyde at Glasgow, until Scott's ashes are left in the classic shades of Dryburg on the Scottish border; indeed, York has to be passed before we are out of his domain. Nor does Scott alone reign in literary supremacy. We have scarcely left York before we are in the country of George Eliot, whose province infringes on that, in Lincolnshire, enshrined in the verse of Tennyson, and we have no sooner turned the corner of Norfolk, at Lynn, where Eugene Aram marched with "gyves upon his wrists," than we are in a district which Dickens has made his own in "David Copperfield" and "Pickwick." And so the claims to the east-coast route pile, Pelian upon Ossa, for I have not mentioned its relation to the ancestry of Washington, and to the Pilgrim Fathers, under the shadow of "Boston stump," nor a hundred other reasons, historical and picturesque, which are in its cornucopia of riches.



EDINBURGH CASTLE



Had the matter been designed instead of, like Topsy, having grown, it could not have been better arranged that the one port in Scotland at which Americans must land is Glasgow. It is a city with an unbroken history of 1,500 years, and a distinctly commercial city, too, of a million inhabitants, yet it is the most modern city in the world in its interpretation of the obligations of its popularly elected municipal authorities, to own all public utilities and carry them on for the public benefit. It would be out of place to enter into the subject here, but it would be very advisable for intending tourists to send to Washington for the recent report of the U. S. A. Consul on the subject. Putting aside this, however, Glasgow has many evidences of an enlightened and artistic spirit, fitting admirably into the romance with which it is enweaved as the stepping stone into the country of "Rob Roy," for was it not in the cathedral crypt that Rob Roy whispered his rendezvous with Osbaldstone on the Clyde Bridge at midnight; and did not "Baillie Nicol Jarvie" live on the Salt market here?



DUMBARTON CASTLE AND ITS ROCK

But we must away, or our long journey will never be begun, and so we ride out along the Dumbarton road sixteen miles, to where

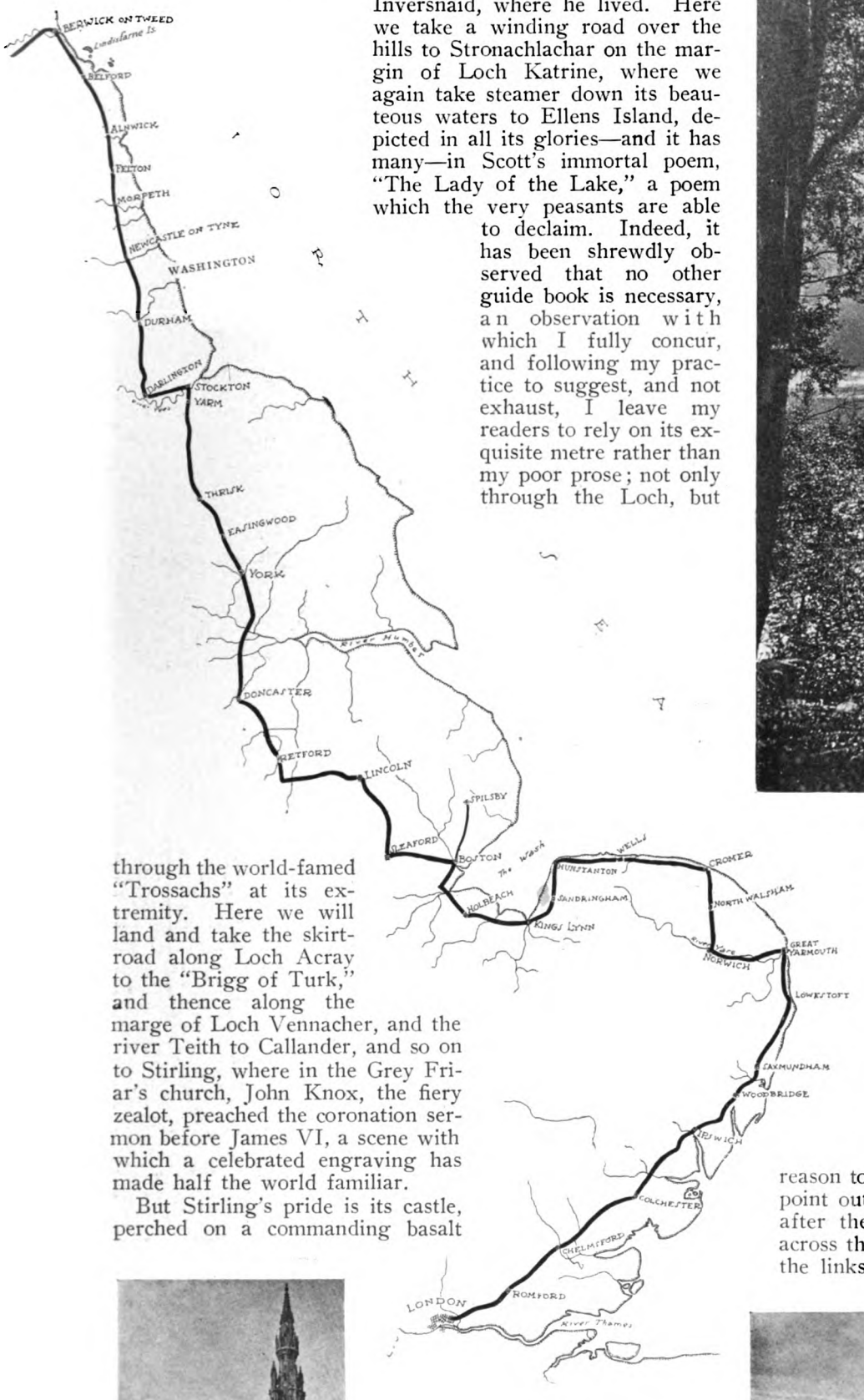
> "Dumbarton's walls and frowning keep
> Shield well the beauty of the Clyde."

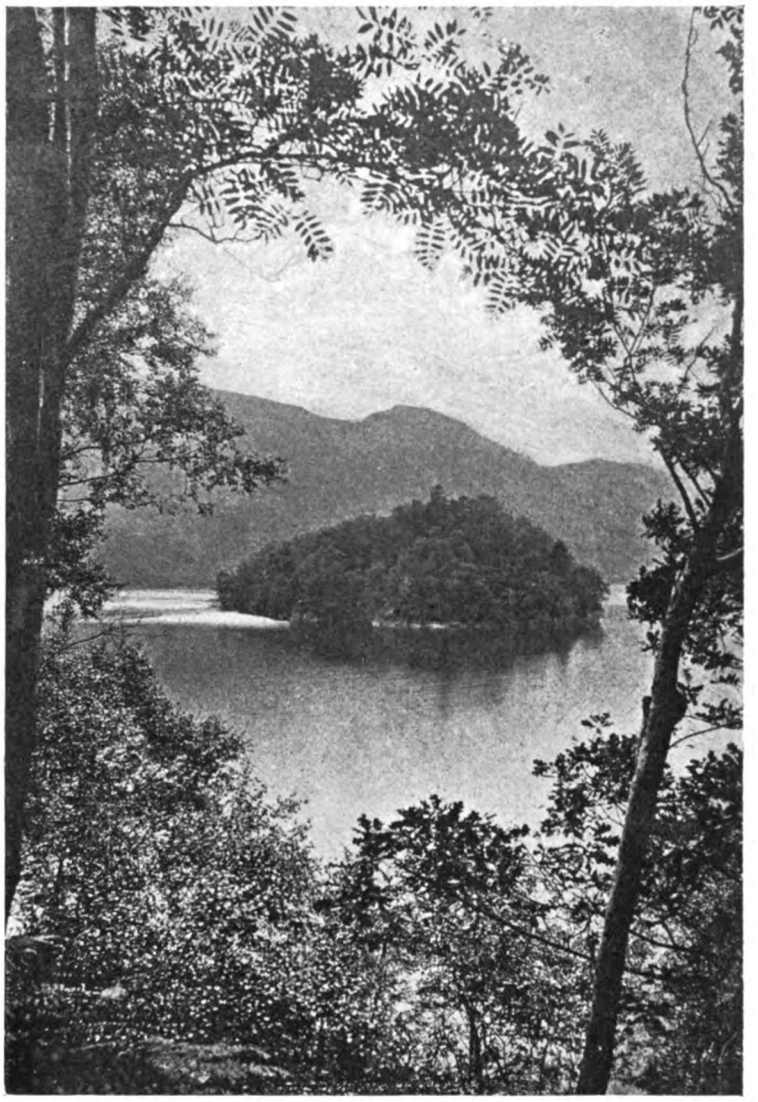
on which, by the bye, the first steamboat in Europe was built in 1812, under the shadow of the beacon raised on its frowning heights by the Romans, to guide the seamen of 1,600 years earlier.

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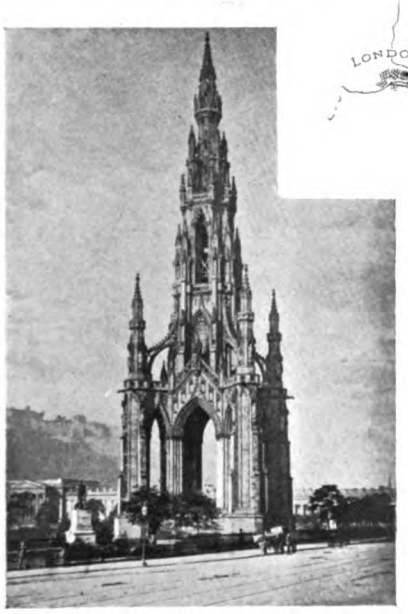
From Dumbarton the road leaves the Clyde and ranges through Alexandria and Luss along that queen of the Scottish lakes, Loch Lomond, which may almost be said to belong, even yet, to "Rob Roy;" for at Tarbet we take the ferry which lands us on the eastern shore at Inversnaid, where he lived. Here we take a winding road over the hills to Stronachlachar on the margin of Loch Katrine, where we again take steamer down its beauteous waters to Ellens Island, depicted in all its glories—and it has many—in Scott's immortal poem, "The Lady of the Lake," a poem which the very peasants are able to declaim. Indeed, it has been shrewdly observed that no other guide book is necessary, an observation with which I fully concur, and following my practice to suggest, and not exhaust, I leave my readers to rely on its exquisite metre rather than my poor prose; not only through the Loch, but through the world-famed "Trossachs" at its extremity. Here we will land and take the skirt-road along Loch Acray to the "Brigg of Turk," and thence along the marge of Loch Vennacher, and the river Teith to Callander, and so on to Stirling, where in the Grey Friar's church, John Knox, the fiery zealot, preached the coronation sermon before James VI, a scene with which a celebrated engraving has made half the world familiar.

But Stirling's pride is its castle, perched on a commanding basalt rock which dominates the whole country side. Well may it have been a bone of contention between "Wallace, the Bruce" and King Edward I of England, who emptied faraway London of its battering rams to effect an entrance. From its terraces in the old days the 'lady fair' of many a doughty knight watched the tourneys on the field below, where now is the peaceful cemetery of the modern citizen. We cross the river here, a tributary of the Forth, and, passing through Falkirk and Linlithgow, without more than a thought that here first saw the light ill-fated Mary "Queen of Scots," in the palace which was for many centuries a favorite home of Scotland's kings, we reach the modern Athens, "Edinburg," a city set upon several hills, whose story is the possession of the world, and of which it would be futile to attempt a resumé here. Whoso has sufficient interest to visit it, has sufficient means of access to funds of information it would be presumptuous of me to offer. Buy liberally of its local stores, both its history and its views, and you will have reason to thank my reticence. What I may be permitted to point out is that if any of the party be golfingly inclined, after they have visited the much heralded St. Andrews, across the Forth, they will be well advised to take a spin to the links of Gullane, Dirleton, and North Berwick, which

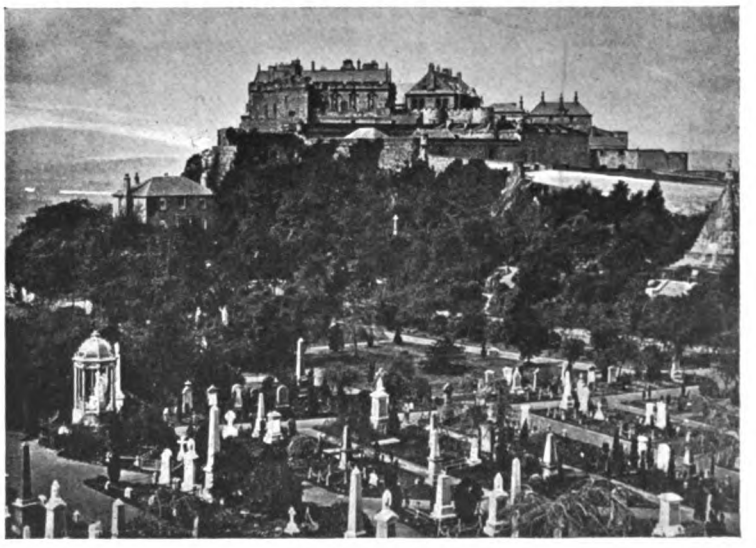




ELLENS ISLAND IN LOCH KATRINE

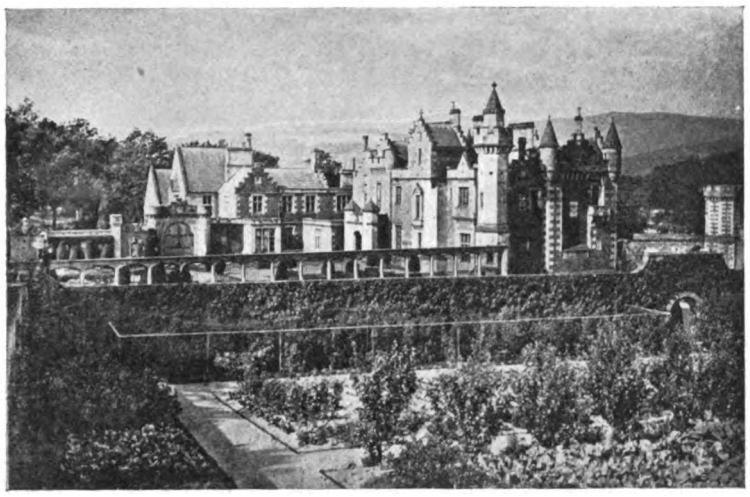


SCOTT MONUMENT IN EDINBURGH



STIRLING CASTLE

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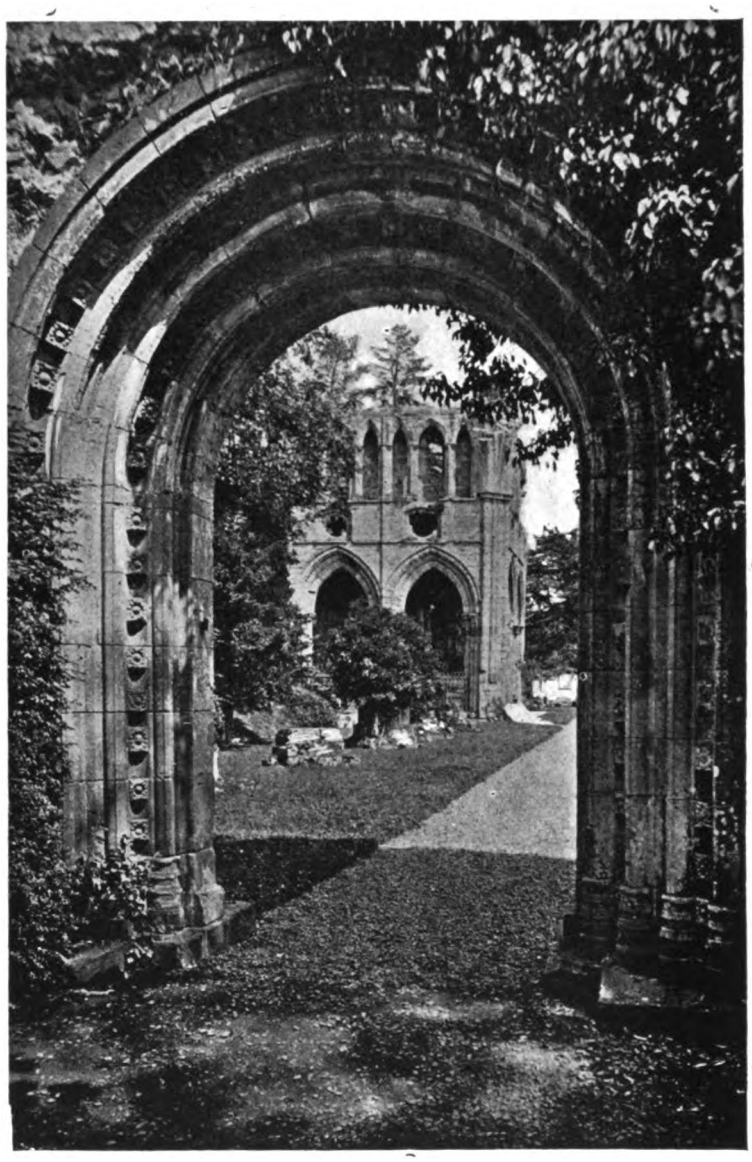
ABBOTSFORD, WHERE SIR WALTER SCOTT LIVED

are all nearer, more accessible and equally interesting, if not more so.

Presuming that the thousand and one lions of Edinburg have been enjoyed, we can take up our parable by turning our wheels southward, over Bruntsfield links (on which no golf is played), and, following the foot of the Pentland hills, we shall come to Roslyn Castle and Roslyn Chapel, the latter of which is worth a passing visit, especially for its ornate roof, a cross between the fan-tailed roof then (1446) the prevailing fashion, and the Mooresque-Alhambra. I know no other example so ornate, at any rate north of the Mediterranean. It is not far from Roslyn to Peebles, where we come to the bank of the border river, the Tweed, but do not yet cross it. Jogging on through Innerleithen to Galashiels, the hum of whose valley is made by the looms which make the bulk of the famous Scotch tartans, and thence on to Abbotsford, where Scott lived and surrounded himself with the feudal splendor so dear to him, for the great part yet available to us, as relics of the mind and the times he resurrected out of the past, with a richness of imagination and a profound knowledge of traditions and folklore which have never met in the same brain in all the world. He chose his home wisely in the borderland he knew and loved so well. Melrose Abbey, the noblest ruin and most romantic in the land, was his nearby neighbor, where the heart of "Robert the Bruce," Scotland's "Coeur de Leon," is interred, and no farther from him was Dryburg Abbey, within whose romantic shades lies the dust of the imperishable author, who has left a legacy to Scotland more valuable than all her material wealth, and a lesson of commercial probity as valuable as his heroic efforts and the glamor of his matchless pen; for all which, at your leisure, see "Lockhart's Life of Scott."

If one cares to turn off the direct road some ten miles to the southeast of Dryburg, they will come to Jedburgh, from whence the proverb "Jedburgh justice" takes its name; i. e., "Hang the cattle stealer first, and hold his trial afterwards," a custom not unknown in the early days in our own far West. It is a very striking ruin, but, perhaps, we had better keep on skirting the Cheviot hills, through Coldstream, and so on to the old border town of Berwick-on-the-Tweed, the key to Scotland, for the custody of which there were centuries of bloody conflicts. Few towns in the world have had such a procession of rivals march through its gateway, which has survived to this day, a veritable Caudine fork, as this or that army was the conqueror.

But that is not the only reason there has been generations of practicable roads through all this district. There were good commercial reasons; for on all these wide ranging hills and moors there grew to marketable value countless fat beeves, destined to feed the wealthy Southerner, and I have, before the railroads pierced this district, seen miles of its roads weekly made black with the herds, on their way to London and intermediate markets, of long-horned, rough-maned, stocky, lovely, Highland cattle, which Rosa Bonheur has made familiar to half the world and a herd of whose primitive progenitors is



DRYBURG ABBEY, MOSS-COVERED AND BEAUTIFUL



THE MICKLE-GATE BAR IN THE CITY WALL OF YORK

still preserved by the Earl of Tankerville in the nearby "Chillingham," where they have been known for many centuries as the "Wild Cattle." I have helped to shoe these Highland cattle of commerce many a time, for every beastie of them had eight little iron shoes, to prevent the friction of the gritty roads wearing down his hoof to the flesh. It was a bonnie time for us boys when the herdsmen's dogs and the dust announced the cattle's pilgrimage, for every one shod had to be lassoed and cast. All that remains of it now is good roads for the motorists, and memories. Some of the hills are rather stiff, but none dangerous. The road out of Berwick, which for the first mile is uphill, runs parallel to the North Sea; and five miles south of it, if one be so inclined, on an island off the coast, to be reached by boat at high tide, but by the sands at low tide, is Lindisfarne or Holy Island, one of the earliest, if not the very first, sanctuary of British Christianity as expressed in a monastic establishment, for it was founded in the seventh century. Its isolation in turn became its destruction. The monks had not reckoned with enemies from the seaward, and in 883 the sea-roving Danes reduced it to the ruin it now is. Lindisfarne may be skipped by those not inclined to make the detour, or may be read in Scott's "Marmion," but Alnwick is

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DURHAM CATHEDRAL FROM THE RIVER



NORWICH CATHEDRAL

on the direct road, and although nearly as ancient, is still the home of the Northumberland Percys, whose name is writ large in all the border history and minstrelsy. From Alnwick the road begins to rise, to fall again to let the river through at Felton, where it rises again to Morpeth, the county town of Northumberland. Just before reaching Newcastle we shall pass over the site of the most remarkable military structure erected by the Romans in all their world empire. The stone wall of the Emperor Severus, built A. D. 208, completely across the island from the Firth of Forth, just north of Carlisle, to Wallsend, just northeast of Newcastle on the estuary of the Tyne. It was built to keep out the northern barbarians, and in its eighty miles had eighty permanently garrisoned forts, and between each pair of forts, four watch towers. Pretty tough sort of fighters were these Picts and Scots to need such a muzzle. Of course much of it has been used for building materials by the thrifty Lowland farmer, but it is still traceable over its whole course. There is no parallel to it except the Great Wall of China.



LINCOLN'S IMPOSING CATHEDRAL

Newcastle-on-Tyne is the metropolis of the coal trade of all the north, where, perhaps, the most interesting exhibit is, in the central station, Stephenson's first locomotive engine.

Ere we reach Durham, some five miles southeast of Gateshead (the southern suburb of Newcastle), we must spare the time for a visit to Washington, a name many will be surprised to hear, yet it is not a name given to some modern mushroom, but the veritable home of the original of the George Washington family tree, planted there in the flesh in A. D. 1183. The Sulgrave Washingtons, who were established in Northamptonshire in 1538, were a lusty branch of the original Durham Washingtons, who first appear in authentic history in this remote Northumberland village over 800 years ago.



SARACENIC FANTAIL ROOF AT ROSLYN

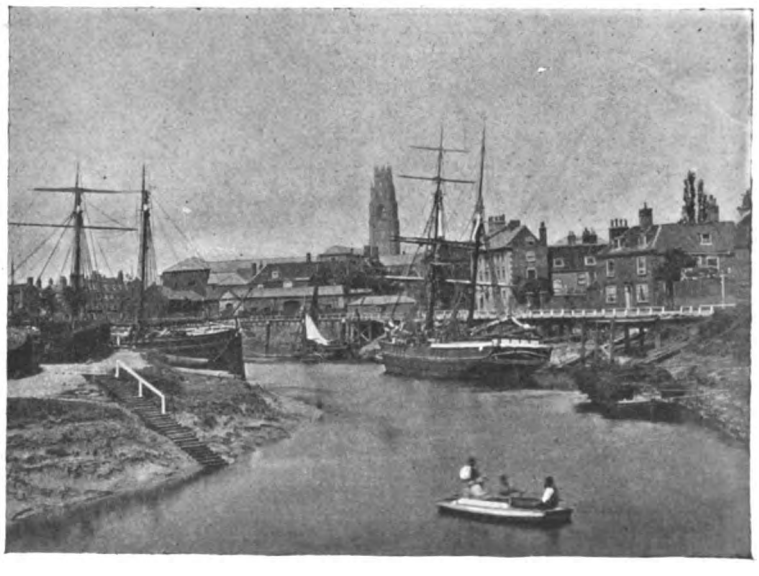
Now we may go on to Durham, the first of the lordly cathedrals which diadem this great north road with a grandeur of ecclesiastical and historic importance not to be exceeded in all Europe. Durham, York, Lincoln, Norwich, all of which we shall pass, and Peterborough and Ely, which we shall just miss, are, each in its respective setting, gems of the first water and alone worth all our journey. It is not my province to describe them in detail, I would advise for that purpose the perusal of M. G. van Rensselaer's descriptions in the Century Magazine.

Durham, as befits the outpost, is half castle, half cathedral, incomparably set, high up on the rocks, with the river Wear almost circling it, and the Conqueror's Castle on the neck of the peninsula, and, below, or from the heights above, or inspected in more detail from the many coigns of vantage in the ancient university city, it is altogether impressive and massively magnificent, as befits the resting place of the venerable Bede, the father of English history.

The Bishop's Palace is at Bishop's-Auckland, ten miles on our way to Darlington, whose title to wide notice is derived from the fact that the first public locomotive railroad ever operated was that between it and Stockton, and the first locomotive used on it, in 1825, is there preserved; otherwise we may proceed eastward to Stockton, and thence southward through Yarm, Thrisk, and Easingwood to York. The Yorkshire roads are, at times, somewhat rough, but are well metalled and make good riding.

York is one of the few walled cities left in England, and a walk around it by the six city gates, or, as they are locally called, "bars," is the best general introduction to the city's topography. It is, I think, the most interesting antiquity in Great Britain. Before the Christian era it was an important city. The Romans made it their capital; its walls to-day are built on their foundations. It was a favorite resort of their rulers, and Constantine the Great, the founder of the western Roman Empire, who was proclaimed Emperor within its walls A. D. 306, was the son of a British mother. If we turn for a moment to its ecclesiastical origin, it is no less

(CONTINUED ON PAGE 50.)



BOSTON IN LINCOLNSHIRE

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Conquering the Sierras

By A. E. Beyfuss.



Motor touring in the "land of sunshine" is unexcelled. Until recently, the interesting trips to be made in California were rarely taken advantage of, but now the pioneers in the new enthusiasm, and especially those of San Francisco, are fast falling into the habit of taking extended runs—trips that take them away from the beaten paths and over new territory to the extent that is possible only over the all but limitless leagues of the Golden State.

A most interesting bit of motor exploring was recently done by Mr. F. A. Lathe, of San Francisco, who with a Stevens-Duryea made a 450-mile run from San Francisco to the southern limits of the Yosemite Valley by way of Stockton, Modesto, Merced, Madera, Fresno, O'Neal's and "Peckenpaigh's Mills," en route passing through sections of California that are among the most interesting in the State, both from the scenic and historical standpoints.

The terminus of the trip, high in the Sierra Nevada mountains to the north of Fresno, was in the neighborhood of 5000 feet above sea level, and most of this rise was accomplished after the motorists had left Fresno, that city being only 500 feet above the sea.

From San Francisco, the first stage of the trip was made by boat to Stockton, a distance of ninety miles, this portion of the journey being an exceedingly interesting one through San Francisco, San Pablo, and Suisum Bays and the San Joaquin River. From Stockton to Merced the road lies along the line of the Southern Pacific and the San Joaquin Valley railroads, and passes through five of the most fertile counties of California, the smallest of which is about the size of Delaware, and the largest of which is larger than Connecticut or New Jersey. Not only is the scenery beautiful in this section of the State, but the roads are excellently built and well maintained, this being the center of one of the most important wheat-growing areas in the world, and it obviously being necessary to provide proper facilities for the ready transportation of the millions of bushels of grain.

Fresno, where the San Joaquin Valley was left, is a thriving city of 20,000 population, in the immediate vicinity of which are grown nine-tenths of the raisins consumed in the civilized world. Near Fresno there are many short trips of considerable interest—Tulare Lake being only forty miles away, Kings River fifteen miles away, Visalia forty miles away, etc. Mr. Lathe stayed in Fresno several weeks, making these short trips to surrounding towns, ranches, and other points of interest, and then set forth on his trip into the mountains.

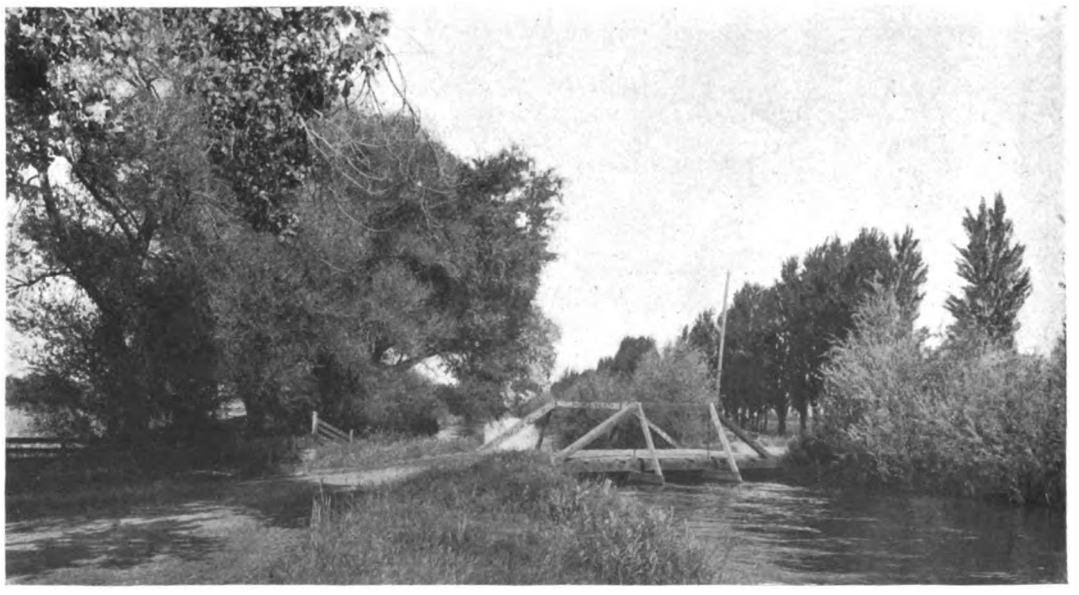
For the first nine miles out of Fresno there is a splendid road to Kearney Ranch, this road being bordered for the entire distance by a continuous line of palms, trees, and rare shrubbery, such as can be seen only in California. The expense of making and maintaining this road has been borne solely by Mr. Kearney, who, in thus providing convenient access to his magnificent summer residence, has set an example that might well be followed by men of wealth generally who rejoice in the possession of country estates. From Kearney Ranch on, the possibility of a motor-car trip was problematic. The mountain-bred lumbermen of Fresno insisted that the few motor vehicles that so far had attempted to make the mountain trip had uniformly failed, and that consequently there was little likelihood of Mr. Lathe's being able to go through. This, however, did not discourage him, and his faith in the new means of transportation was vindicated at the end of a three-hour-and-fifteen-minute run, by which time O'Neal's Station, forty-five miles from Fresno, had been reached.

According to Mr. Lathe, "This station is used as a stopping place by teamsters, and an occasional camping party penetrating the fastnesses of the high Sierras." Consequently much curiosity was evidenced by the natives, and the oldest inhabitants were duly impressed with the modern mechanical wonder.

After partaking of the hospitality of Mrs. O'Neal, the chief element in which consisted of a repast that was truly enjoyed by the road-weary travelers, the trip was continued.

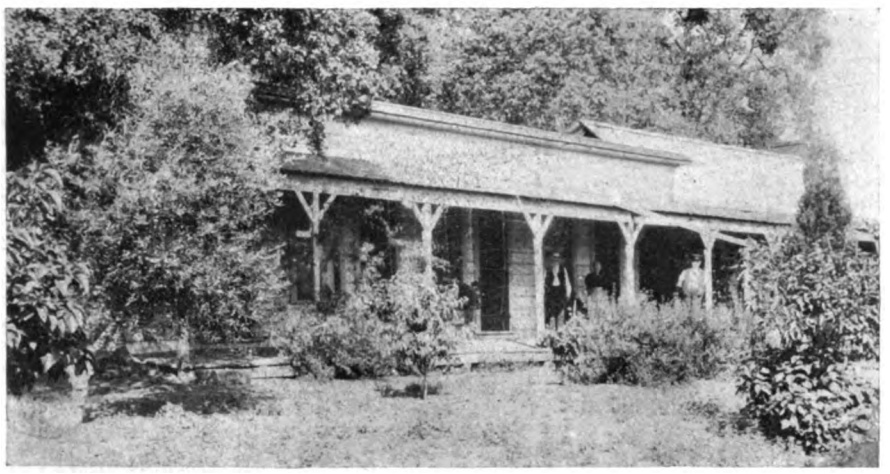
Greatly to the surprise of the natives, the return to Fresno was not yet attempted, but the car was headed directly for the second range of mountains, which loomed blue and high in the distance. After fifteen or twenty miles more of continuous up grade, over roads that were very fair for mountain roads, but in places excessively steep and frequently very sandy, another station was reached, which from general appearance and surroundings seemed to be quite the jumping-off place of the vicinity. Nevertheless, after a stop for a picture of an old mountaineer and the small store from which he dispensed groceries and provisions and other accommodations for the inner wants of chance passers by, it was decided to attempt a further run along the poor trail that led to the last station on the road, and which it seemed possible that a motor car might reach. Inquiries made elicited the information that the road beyond was not much worse than the road which had been traveled, and, sure enough, after surmounting many difficulties, he at last arrived at "Peckenpaigh's Mills," at a distance of fully ninety miles from Fresno. At "Peckenpaigh's Mills" a several-days' stop was made and numerous side trips were taken both with motor car and pack horses. Two nights were passed with the Indians, of whom there are still many in the neighborhood, and before leaving a photograph was taken of the dam, which walls across a valley far up in the mountains, forming a lake that supplies water and power for the lights, street railways, etc., of Fresno and other places.

The return trip to Fresno was made over the same route, without incident or mishap. Fresno to San Francisco was likewise easy running, and practically the original route was gone over. Four and one-half days was the entire time from Fresno to "Peckenpaigh's Mills" and back, and only nine and one-half gallons of gasoline were used on this section of the



AN IRRIGATING DITCH IN THE RAISIN DISTRICT

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O'NEAL'S—THE WHOLE OF A TOWN THAT'S ON THE MAP

journey, which is a remarkable record, considering the rugged character of the roads traversed—the many grades, and the spots of deep sand, gravel, and broken rock. An exceedingly interesting variation of Mr. Lathe's trip that has been suggested is that to Sequoia National Park, in the high Sierras due east of Visalia.

As remarked in a preceding paragraph, Visalia is 40 miles southeast of Fresno, by an excellent road, or, if a motorist desires to make only the mountain portion of the trip in his car, about 200 miles from San Francisco by rail. From Visalia, an excellent stage road, part of the upkeep expense of which is borne by the Government, winds over the foothills and on through the mountain passes to the park. This road is 50 miles long, and is traversed once a day by a stage, but the motorist is, of course, tied to no such schedule, being free to go when and as he pleases. In the Sequoia National Park, which is one of the least known, though most beautiful, of the Government's forest and mountain reservations, there is much to be seen of interest. Besides several groups of the famous big trees, there are cliffs and waterfalls that rival those of the Yosemite.

If further adventures be desired, the ascent of Mount Whitney may be undertaken, though this involves a change in means of transportation from the speedy motor car to the likewise sometimes balky, but for this purpose rather more satisfactory, "burro," the diminutive edition of the donkey which is well and widely known throughout the West. Of course, there is no stage road up Mount Whitney, and it is not possible to ride even the most sure-footed "burro" clear to the top, but a considerable portion of the distance may be covered per the long-eared, four-legged conveyance, and then it is up to the traveler to continue on by foot, and sometimes hands, over snow-covered precipices and glacier-filled cañons that well might daunt the most expert Alpine climber.

Those who may finally reach the summit of Mount Whitney will have the satisfaction of knowing that this is the highest peak in the United States, with the exception of several in Alaska, it rising to an altitude considerably exceeding 15,000 feet above sea level. From the top, there is to be seen a magnificent panorama of peaks and plains, embracing in one wide prospect things even so dissimilar as orange groves and perpetual snow.



AN OUTPOST OF CIVILIZATION

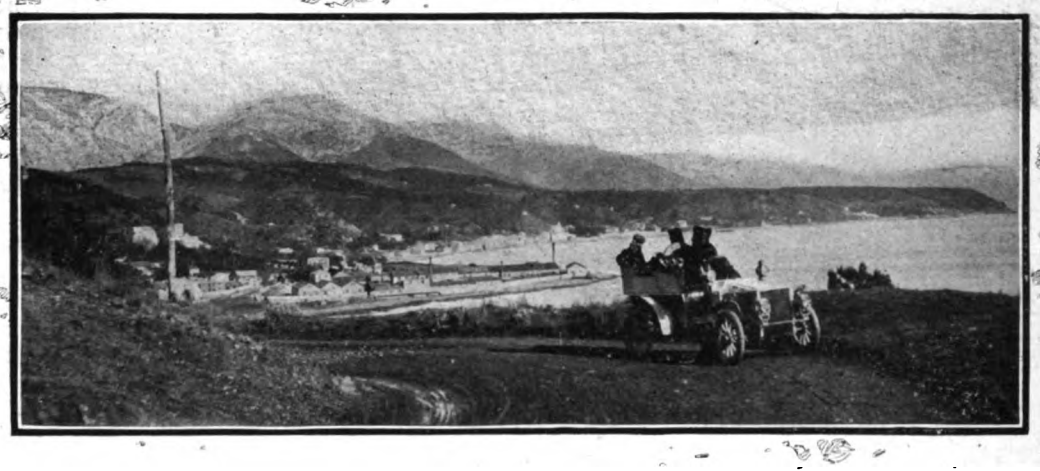


A CATTLE RANCH IN THE MOUNTAINS

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What One Man Saw in Europe

By Paul Deming



My recent trip through Italy and France in a White steamer was a revelation to me, as it probably is to every American motorist who for the first time motors abroad, of the wonderfully easy and interesting touring that is possible over the unsurpassable roads of Europe.

Our party, consisting of my wife and myself, accompanied by our chauffeur, arrived at Genoa, February 1, after a voyage uneventful, except for stops at Gibralter and Algiers. The city of the famous fortified cliff was reached the day after we had sighted the first land—Cape St. Vincent, Portugal—and during a stop of several hours we easily kept busy sightseeing.

For practically the entire distance to Nice the road winds about the beautiful cliffs that overhang the Gulf of Genoa, which merges into the blue Mediterranean in the distance, with Corsica just visible on the horizon. Sharp turns and steep grades are frequent, and necessitate careful driving, but it is for the most part all that is to be desired. In the towns it was necessary to pass through cobbled streets, and take the utmost care to avoid the children who swarmed out to see us. A railroad that crosses and recrosses the highway with patience-destroying regularity is another source of annoyance. At each crossing there are gates, usually in charge of women. Before opening the gates they would always insist that we start our engine and be ready, and it was not always easy to convince them that the White is not a gasoline machine, and is always ready. At one place we were not permitted to proceed until a train had passed, which at the time we appeared was due in half an hour!

We reached Mentone, on the French border, too late to arouse the customs officer, so had to stay there all night.

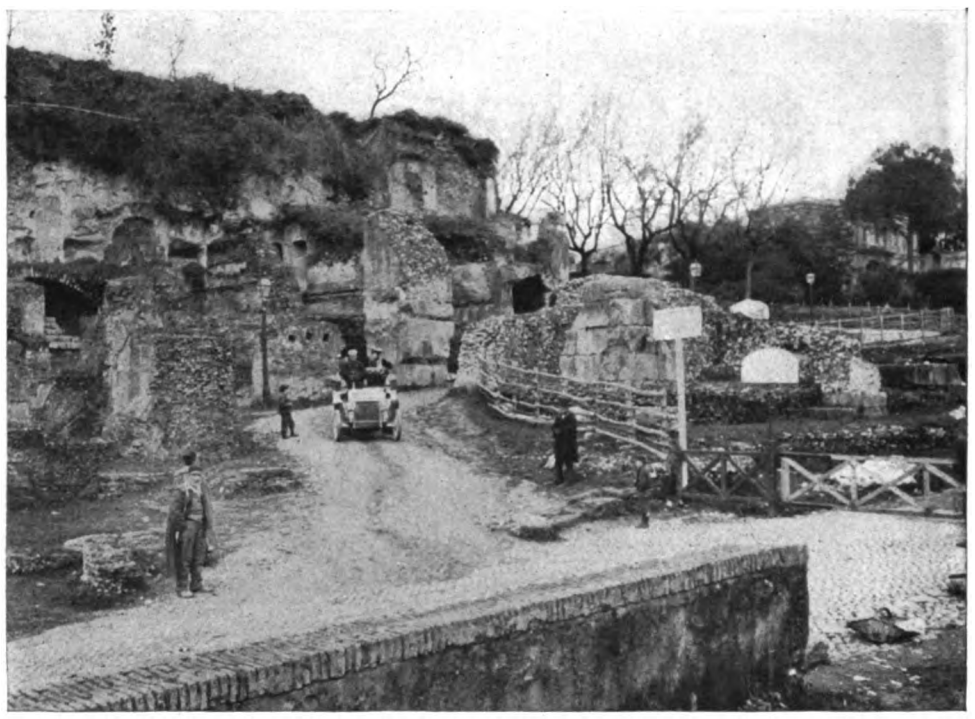


BRIDGE ON VIA NOMENTONA

We were in Nice just in time for the famous "carnival," and after spending two weeks enjoying this, and making side trips to Cannes, Grasse, and Monaco, and riding over Napoleon's engineering masterpiece, the Corniche Road, we retraced our way to Genoa.

From Genoa, we went southward, reaching Pisa by night. The roads here were the best we found in Italy; the towns were far apart, and delays for railway crossings infrequent. After a night at Pisa, we entered upon a complete change in scenery. We now were in the mountains, and in every direction from the winding road were tiny towns, nestled in nooks and crannies of the all but inaccessible hills, and each clustered close to the village church, within range of its tinkling bells. So long this day did we let our eyes dwell upon the scenic beauties spread before us, that we finally had to give up the idea of reaching Rome by night, as had been planned. So we put up at one of the very poor hostelries of Civita Vecchia.

The next day our road led to Rome. Nothing of exceptional interest was seen en route, but when still many miles from the Eternal City, the dome of St. Peter's guided us to our goal.



IN THE RUINS OF THE FORUM AT ROME

We stayed in Rome for ten days, attempting in that time to have at least a fleeting glimpse of the innumerable places of historic interest.

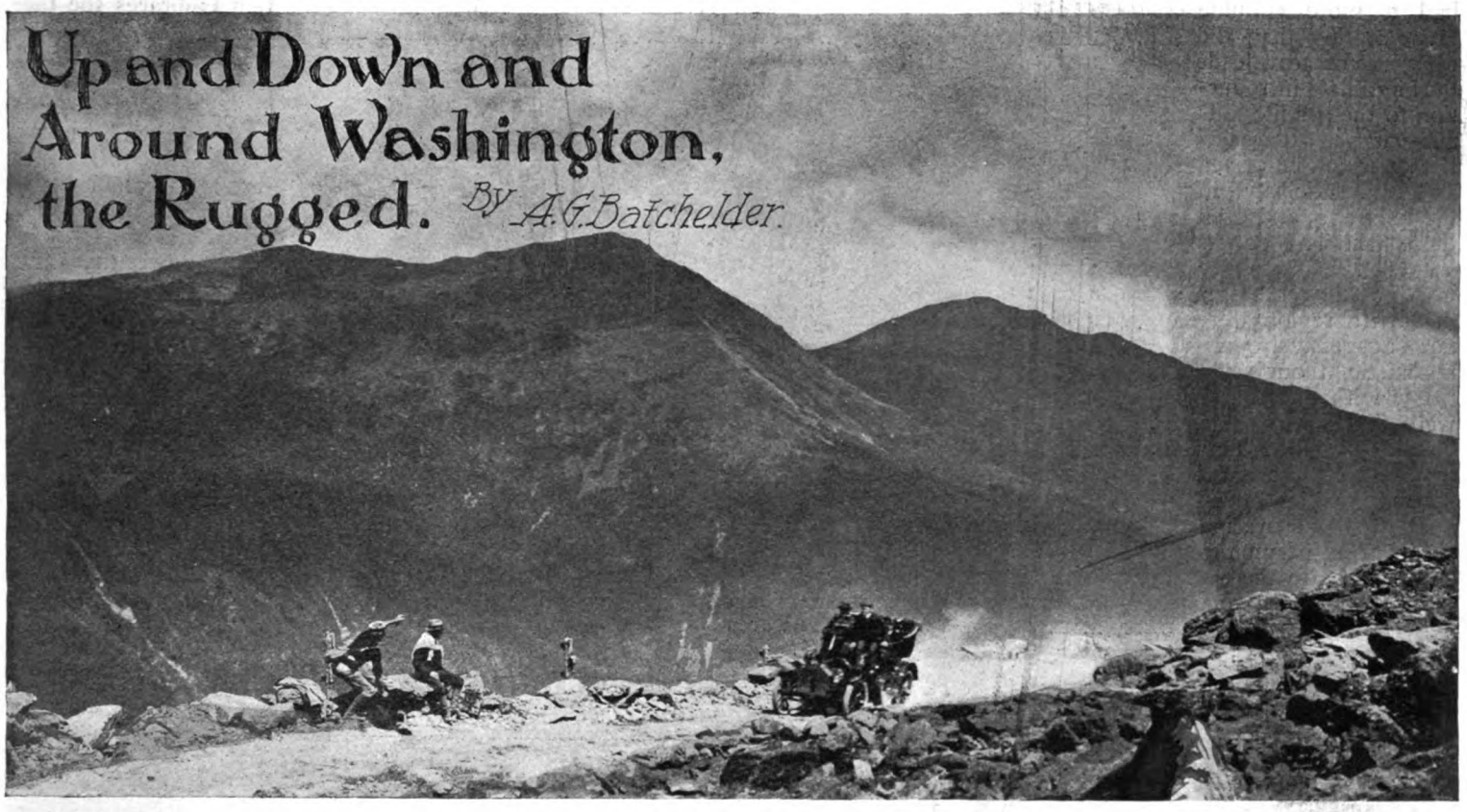
From Rome we went to Naples, starting out by the Appian Way, and from there, as our time was rather limited, Mrs. Deming and I went to Venice by train, while our chauffeur took the machine to Marseilles, where we afterward proceeded, having spent ten days in Venice. From Marseilles to Paris, we toured in four and a half days, passing through Avignon, Lyons, and Saulieu. The road—one of the famous "routes nationale"—was perfect, and the towns were clean and the hotels good. We encountered many other motor cars on the way, practically all of which were of the touring-car type; and from Macon to Saulieu, a distance of about seventy-five miles, we had an exciting race with a Serpollet. We won by an hour and a half.

In Paris we stayed eleven days, seeing the many sights in and about that famous city. Then we drove to Dieppe in a day, wasted another day in securing rebate on duties we had paid, and shipped the car to New Haven, England, by the night boat. We went over on the day boat, and from New Haven drove to London without incident, except for a pouring rain. From the fleeting glimpses we here had of English roads and villages, we should gladly have stayed much longer, but it was necessary to end the tour at London.

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Up and Down and Around Washington, the Rugged.

By A. G. Batchelder.



That second week of July in the White Mountains, even to those who consider themselves well posted in the progress of motoring on land—for it is advancing on watery highways as well and will soon be traversing the trackless air, hence the distinction—proved a revelation and a source of undisguised amazement. What the motor car accomplished must stand to its enduring credit, though in future years the performance will lose its present viewpoint, for the development of the motor-driven vehicle has not been encompassed by many degrees. But just consider what the 1904 machines did—both American and foreign — during this strenuous week: Up and down they climbed and descended the precipitous sides of Mount Washington, the highest sky-touching mound east of the Rocky Mountains, and then they survived the toughest two days' endurance run—nearly a century each day—that motor cars were ever asked to go through.



HARKNESS AND HIS MERCEDES

And not only did the cars work out the trying tasks, but they did more in overcoming the undoubted prejudice and hostility that preceded their conquering of the White Mountains region, conquering mechanically the steep grades and indifferent roads and also forcing unwilling spectators to admit their wonderful traveling abilities from all points of consideration.

It was a tour of triumph, that journey through the mountains, and the Governor of the Granite State and another who had served as its chief executive added eclat to the event. There echoed the joyous strains of welcome along the entire route, and the victorious hosts of a Cæsar never



F. E. STANLEY AND HIS 6-HORSEPOWER STEAMER ARRIVING IN CLOUDLAND

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had a more genuine home-coming than did the motor cavalcade during its introduction to the granite hills and valleys. It was as if that which happened had been anticipated in the long ago, and even those who had doubts as to the excessive worth of the motor car in such a region were not aggressively antagonistic, though not a few with their barns well filled with fine, blooded horseflesh may begin to seek a good market in which to dispose of the emancipated animals. Another year there will be an army of motorists in these White Mountains, and the gain will be to the advantage of the whole State, for a more scenically sublime commonwealth does not claim heritage under the Stars and Stripes, Let it be known that in a single day the motor car can cover a hundred miles and more of this inviting region and there will be regiments of motor tourists to gaze upon its grand ranges and lovely valleys. Many thought that the country could be traversed in motor cars, but not without much discomfort and possible danger. This erroneous idea made clear, there will follow the tourist who is always in search of new ground with which to satisfy his fever for roaming.



A SLOW YET SURE WAY OF CLIMBING THE MOUNTAINS

It is a great climb, that devious road to the summit of Washington, and a better scene for a struggle that embraces the picturesque cannot be discovered in this broad land. Eight miles of highway, swerving this way and then the other, ever upward, first through the cool shades of the forest, then above the timber line, winding over more forbidding ground, often with a pall of cloud enveloping all below and obscuring that above, frequently rain and wind to add to the difficulties of the task, and the weather of balmy summer at the base likely to be exchanged for the blasts of a miniature winter when the transit has been brought to its completion at the summit. And on a clear day, what a glorious panorama unfolds during that hurried ride up the mountain sides. 'Tis worth the trouble even if one does not finish among the medal winners. Even a day on which the floating and fleecy clouds tranquilly intrude in the view may be preferred because of the alluring momentary and fragmentary glimpses that recur with startling and entrancing frequency. The peaks are smothered in an interminable web of fog, and then a blast of air rends the veil asunder and the grim heads reappear. It is an experience of a lifetime, this flying jaunt from earth to cloudland.



ALEXANDER WINTON TRYING OUT HIS NEW FOUR-CYLINDER TOURING CAR



OTTO NESTMAN (STEVENS-DURYEA) ROUNDING A TURN

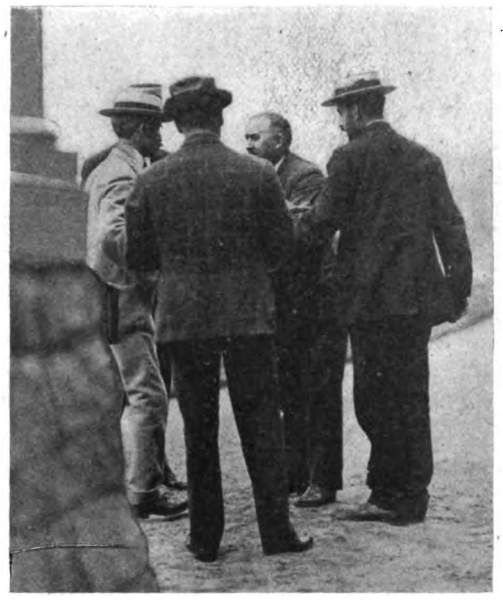
Harkness, the heedless, excelled all others in reaching the top of the rugged hunk of earth and rock, and had

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he the rhetorical style of a Macaulay there would be for literature a story worth the reading anent that wild trip which served as a fitting finale of the most novel competition of these motoring days.

Harry Harkness's climb may live in motoring history for many a day—at least for a year, since no more record trials will be permitted until the next annual affair. It is a feat to try both driver and machine when taken at high speed, and even at low speed it is not a job for weaklings. Harkness ascended the eight winding miles, with their incessant water bars across the road, in 24 minutes 37 3-5 seconds, and this after an all-day and nearly all-night driving of his Mercedes in order to reach the scene of operations.

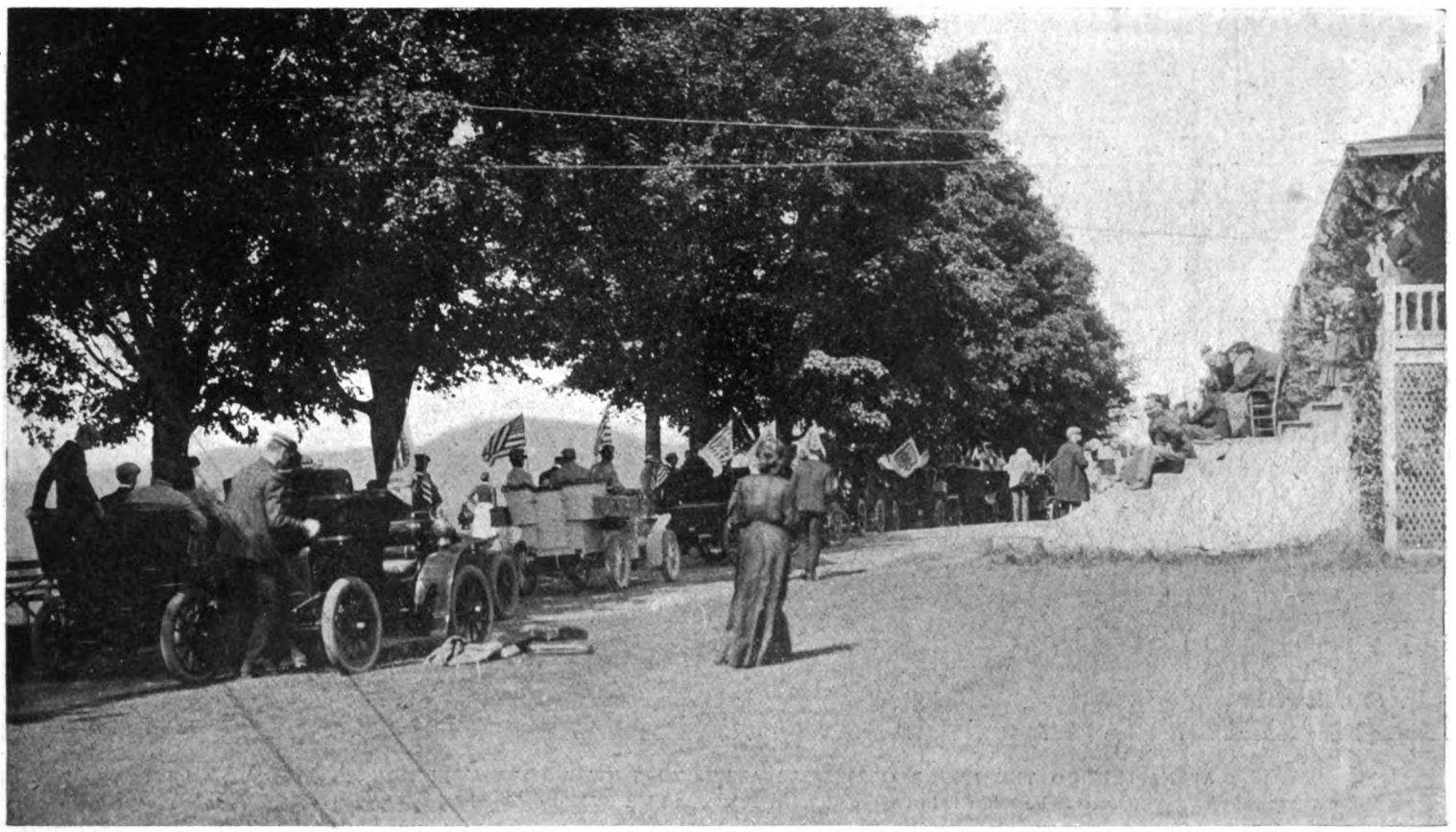
There was on the summit during the day all kinds of weather, beginning with sunshine and embracing even a snow storm, clouds in plenty and rain in profusion. Ofttimes the world be-



A QUINTETTE: MESSRS. POST, WHIPPLE, MORRISON, ANDERSON, AND PRICE

ures which read 28:19 2-5, and none thought that there would be any more improvement, as James L. Breese could only extract from his 40-horsepower Mercedes an inferior climb of 31:22 4-5.

But the Mercedes of Harkness had greater power, and its pilot had a fearlessness which, tinged with recklessness, meant that he would utilize every atom of its ability. The telephone brought up the information that the big foreign car had gained the two-mile post in 5 1-2 minutes, a half minute better than the time of the "steamer." From the Half Way House came another story of increased speed—1 minute 45 seconds being the total margin that separated the performance of the two vehicles. When he heard the report, Mr. Stanley said the record was as good as smashed. The operator then supplied figures which showed that there was a loss of fifteen seconds on the third section of two miles, the most trying of the zizzag climb.



ONE OF THE MOST PICTURESQUE STOPS ON THE FIRST DAY

low was completely obliterated, and this was the case when the New Yorker completed his ascent with a machine that had two broken front springs.

Far down the mountain side the labored snorting of the 60-horsepower mechanical beast told the fog-saturated watchers at the summit Harkness would soon emerge from the dense and gloomy mist that shut from view all that lay beneath. The young Fifth Avenue millionaire, with his German chauffeur tightly clinging to the swaying motor car, abruptly broke into sight at the last turn of the road and came bounding along toward the official contingent stationed at the bottom of the Summit House stairs.

It was known by his cut of the intermediate marks in the upward journey that, barring accidents, Harkness had the revised morning mark of F. E. Stanley at his mercy. The 6-horsepower steamer had bettered its Monday trip and replaced 31:11 2-5, by fig-



EX-GOV. JORDAN AS MR. BREESE'S GUEST

So heavily hung were the misty draperies that enshrouded the top of the mountain that the watchers failed to see Harkness until he was within one hundred yards of the finish, though the resonant "teuf, teuf" indicated his coming a mile and more away. With a whir and a swish he reached the astonished throng, which cheered him to the echo, and a dozen tried to shake hands with him at the same time.

"That was a tough ride," he ejaculated; "worse than going from Boston to New York in record time. The broken springs seemed painfully evident every time we struck one of the innumerable water bars, and for several miles I had trouble with my clutch not holding. I used my second speed nearly all the way. Several times we ran dangerously close to the edge of the road and caught glimpses of the great gulf that yawned threateningly. I am not sure now that I would care to make the climb again."

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Since Harkness had never been up the road before, it was suggested to him by the officials that because his ponderous car exceeded in weight and horsepower any that had ever done the climb, he would be allowed a practice trip, and on the morrow could go for the record.

Apparently this idea did not meet with his approval, or else the motor microbe of speed gained the mastery after he had gotten under way.



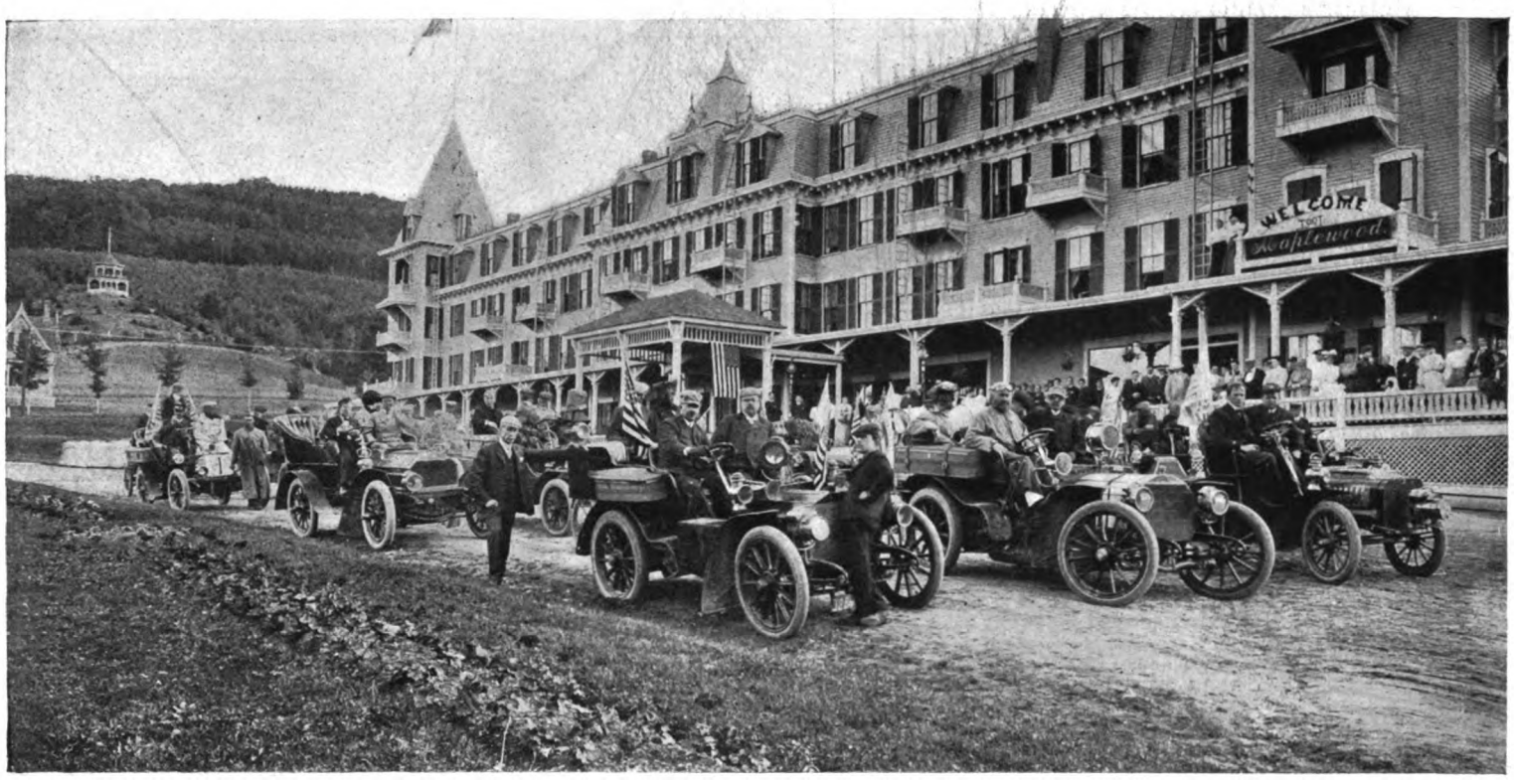
AT WHITEFIELD THERE WAS MUCH ENTHUSIASM

After the Harkness and Stanley trips, the next best was that of A. E. Morrison, whose 24-horsepower Peerless did the task in 29:06 4-5, having been given two minutes through its temporary blocking by a disabled vehicle. Then in point of speed came James L. Breese, with 31:22 4-5. Arthur Batchelder, with a 2-horsepower Metz, established a notable mark for motor bicycles by a journey in 34:11 3-5. Otto Nestman guided his 7-horsepower Stevens-Duryea to the summit in 40:35. Webb Jay rode up in the 10-horsepower White steamer in 42:20 2-5. L. J. Phelps took another climb in his 20-horsepower car and 47:20 2-5 was the result. H. W. Alden ascended in a 12-horsepower Columbia in 51:50 4-5. F. R. Dickenson, with another 2-horsepower Metz motor cycle, made it in 52:50 2-5. Three Oldsmobiles accomplished the climb, and this gave a total of fifteen climbers for the second day of the skyward contest, two machines only falling by the wayside.

Steam knocked out gasoline on the first day, and the record passed successively to five different holders, the one who clutched the honors at sundown being F. E. Stanley, whose light 6-horsepower runabout scurried to the clouds in 31:41 2-5.

James L. Breese, just previous to the arrival of Stanley, by a trip in 34:09 4-5, in his 40-horsepower Mercedes, had eclipsed the accomplishment of his predecessor. Breese encountered a rain storm half way up, and arrived thoroughly drenched, but a clearing sky and a magnificent rainbow greeted his appearance at the Summit House.

The one from whom Breese snatched the laurels was A. E. Morrison, who surmounted the trying grade in a 24-horsepower Peerless, without a skip or miss, though once in rounding a sharp corner he got into a ditch, and luckily escaped without damage and with little delay. Morrison gained his temporary possession of the honor from Percy Pierce, who made the excursion in a 24-horsepower Pierce in 44:31 4-5, and would have done minutes better had it not been for a leaky radiator.



AT MAPLEWOOD THE MOTOR CARS WERE ASKED TO TOOT—AND THEY DID, VOCIFEROUSLY
(Governor Bachelder is in the car with Mr. Breese, and Mr. Glidden rode with Mr. Whipple.)

Pierce took the record figures from H. Ernest Rogers, a Brookline (Mass.) enthusiast, whose companion was Dana Estes, Jr. Rogers was clocked in 48:07 2-5, and his troubles lay in the parting of a tube connection which made his gasoline supply meager and insufficient.

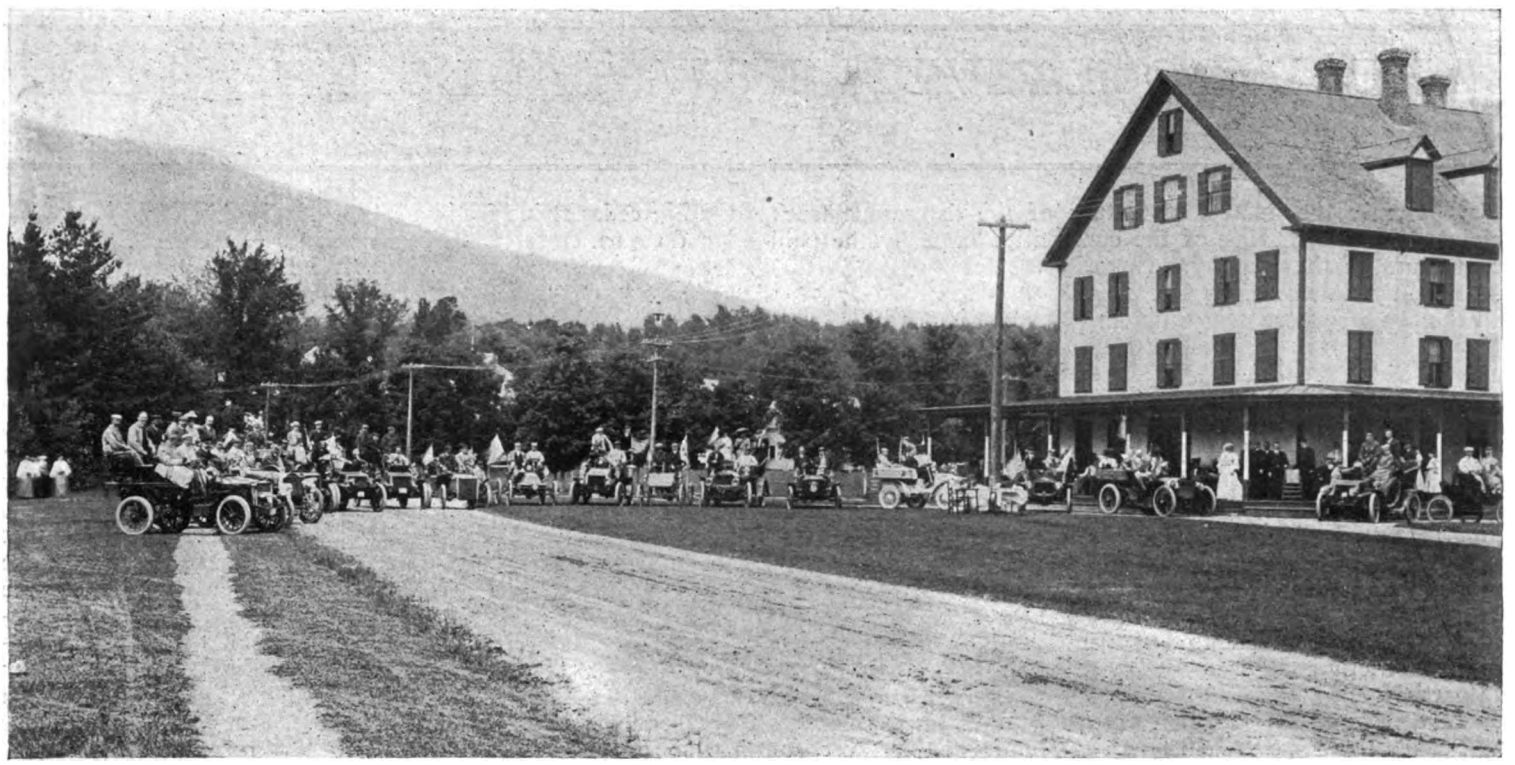


MRS. WHIPPLE WAITS PATIENTLY WHILE THE PRESIDENT INVESTIGATES

L. J. Phelps, the holder of the 1903 record, began the climbing promptly at 5 o'clock in the morning, leaving the site of the old Glen House, on the Pinkham Notch road, exactly on the second. Phelps did the trip in 56:15 2-5 in a 24-horsepower machine of his own construction.

The only other climber besides the five record holders to get within the hour was Harry Fosdick, who

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AT INTERVALS THE TOURISTS RECEIVED A HEARTY RECEPTION

guided a 24-horsepower Winton to the top in fifty minutes, having been awarded four minutes for a delay caused by a machine that had gone out of commission for the time being. Alexander Winton, in full touring rig in his new four-cylinder car, did the climb in 1 hour 33 minutes, and expressed himself as satisfied with its first performance.

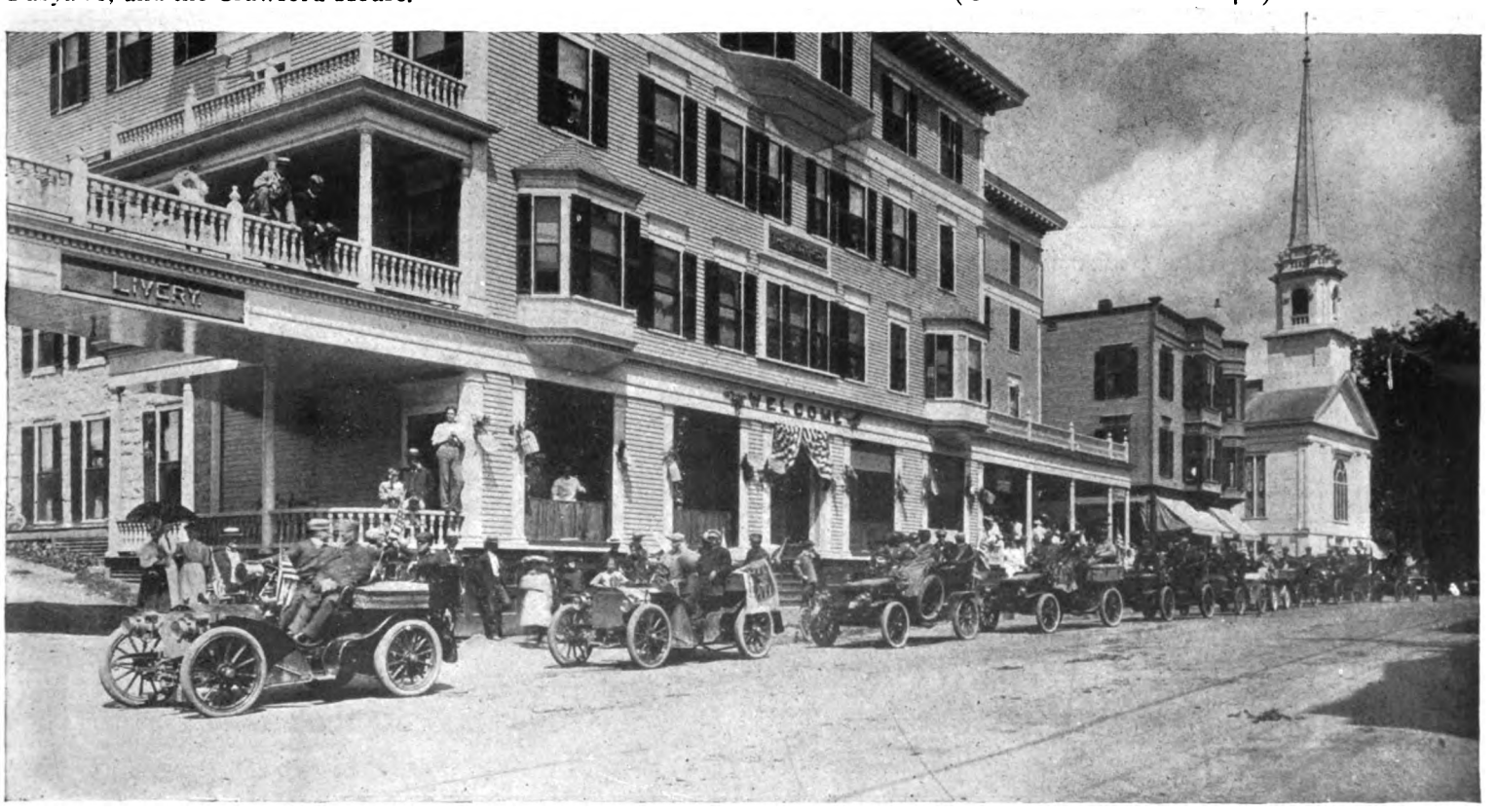
Rain fell Tuesday night so heavily that the road on Mount Washington reached such condition that the hill-climbing came to a sudden conclusion. H. C. Cryder, who began the ascent of the mountain late Tuesday afternoon with a two-ton truck which he had driven from Portland, Me., to the Glen House, got caught in the heavy rain after he had ascended nearly two miles and was forced to give it up. Wednesday morning Mr. Cryder started for Boston with the huge wagon, which deserved a special prize for what it did over miles of highway replete with ascents and descents.

Wednesday being unavailable for any further ascending, the vehicles wended their way from the base of Mount Washington around to Bretton Woods, where in the afternoon after the rain had desisted the biograph and panoramic and other cameras caught the motorists at the big hotels in the vicinity —in front of the Mount Pleasant, the Mount Washington, Fabyan's, and the Crawford House.

Bright and early Thursday morning began the first day of the endurance run with a tour that embraced the Northern towns. Governor Bachelder rode with Mr. Breese, whose Mercedes traveled somewhat in its effort to keep in sight the car of Mr. Whipple, who figured as the pacemaker of the flying parade and carried with him John Anderson, the major domo of the occasion, who knew every man, woman and child in the circuit traversed, as well as every foot of highway. Whitefield, eight miles from the start, gave the first of a series of hearty welcomes that extended all along the line. The village band played airs that took the metropolitans back to their boyhood days; the school children, dressed in immaculate white —typical of the clean little burg—recited in a chorus words of welcome, and there was served the opening supply of a chain of rosy-colored lemonade and tempting sandwiches that interlinked the livelong day.

Ex-Governor Jordan met the procession in the outskirts of Lancaster, where the same note of good cheer sounded vigorously until the thread of the journey was resumed with Littleton as the objective point. The ambitious pacemaker evidently wanted to reach this handsome and well-kept town in a hurry, for he jerked that cavalcade up and down hills and

(CONTINUED ON PAGE 46.)



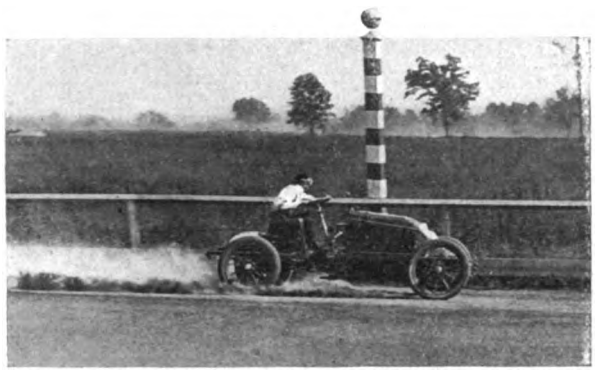
LITTLETON GAVE A WELCOME THAT WAS SECOND TO NONE ALONG THE ROUTE

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THE PAID DRIVER NOW TAKES THE RISK

By Igniter

Apparently the immediate feature of the dangerous track racing is in the driving of the competitive craft by the paid chauffeurs of the wealthy owners. At the July Empire City track meet all the big cars were driven by employes, with the owners included among the onlookers and disinclined to whirl around the curves in clouds of dust at a breakneck pace. Sartori steered a Vanderbilt car, Bernin had the wheel of a Brokaw machine, Hillyard handled a Huggins Decauville, Mensel guided the Arents Mercedes, and even Tod Sloan turned his flyer over to Vaughn. Of course, the makers will contribute contestants, but the day for strictly gentleman amateurs to participate in track racing seems to have passed. In straightaway competition on the beaches and roads the amateur will be more prominent than ever, for he has not lost his enthusiasm, except that the risks in circular racing are too foolhardy for one who has little to gain and mayhap his life to lose.



BERNIN AND THE WILLING RENAULT

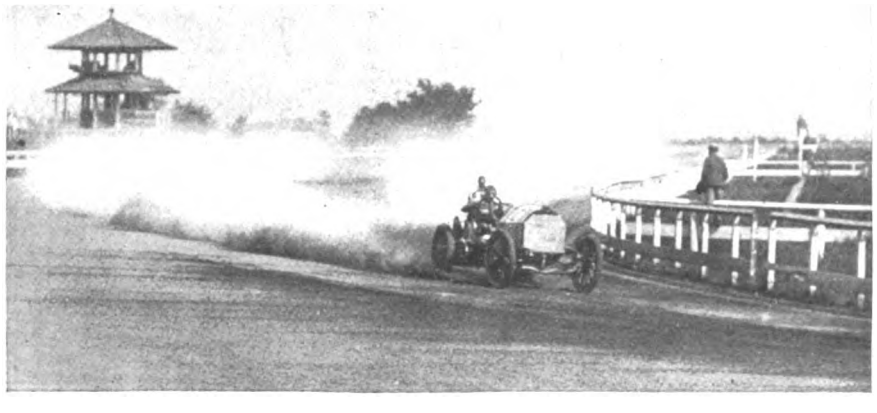
Another thing of note at the Empire meet, and one which accentuated the rapid growth of the motor car as a means of convenient and comfortable transportation, was the astonishingly large number of people who reached the track in machines—over 500 vehicles conveyed fully a third of those who attended the sport.

In the racing Monsieur Sartori bore the Vanderbilt colors of the Mercedes stripe far in advance of all others, and then, having done so, suffered the humiliation of having the ponderous mechanical brute towed from the course, maimed and crippled beyond immediate repair. The standard of Alfred Gwynne Vanderbilt was carried to decisive victory in the fifteen-mile open, and the fall of the mighty came in the handicap events, where the 60-horsepower juggernaut held the place of honor at scratch.

Predictions were plentiful that the Brokaw Renault would give the Vanderbilt Mercedes a run for the stakes in the open, and it did happen that Bernin, with lesser horsepower by one-half, put up a plucky battle until his low-browed demon became lapped in the thirteenth mile, though as early as the seventh round of the dusty circle a punctured tire was ignored as a pretext to drop out of the unequal contention. Sartori ploughed through the clouds of dust in a way that betokened his love for the perilous game, and several of his miles were clocked in 57 seconds. After establishing track records to the full distance of the race, he decided to wipe out the marks that remained to the credit of Fournier, dating back to September, 1901, at Fort Erie, Ont. Sartori's 20 miles required 19:37 1-5, and the old, neglected record of the "ex-King of the Cyclone," 25:25 2-5, seemed slow in comparison.

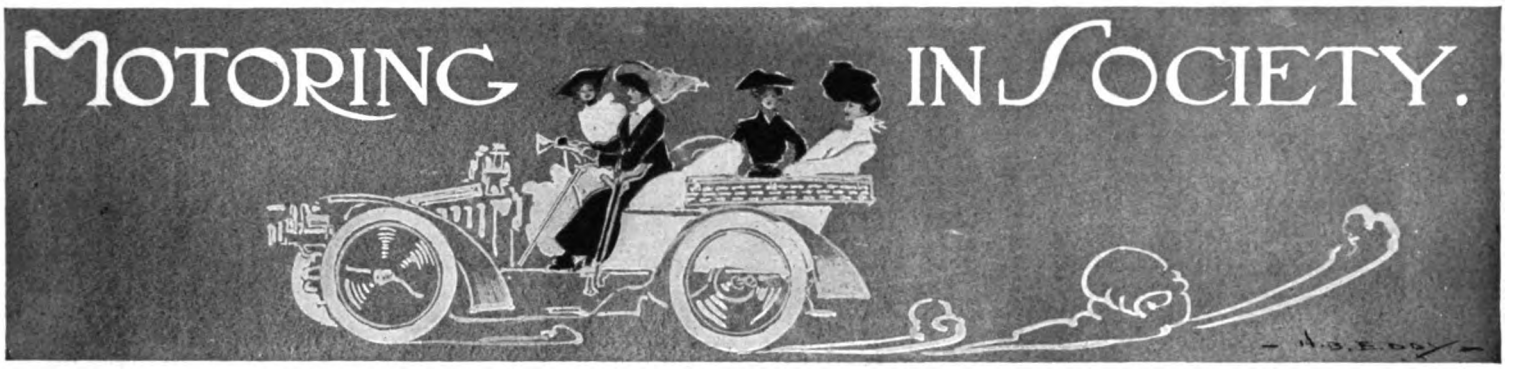


A SCENE AT THE EMPIRE CITY TRACK, YONKERS, N. Y., SHOWING THE EXTENT OF MOTOR TRANSPORTATION



WHEN SARTORI GAINED THE POLE FROM A RIVAL

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It is to the motor that must be ascribed the development of the taste for open air life which has so completely revolutionized Society both here and abroad. People live to a far greater extent out of doors nowadays, touring in all sorts of out-of-the-way places, visiting race meetings, polo tournaments, country fairs, horse and dog shows, and even scenery, from which considerations of distance and the discomfort of railroad travel would formerly have deterred them. The Townsend Burdens, the E. H. Harrimans, the George Goulds, the Laurens Van Alens, and, in fact, nearly everybody who has been abroad this spring and summer, has been motoring through parts of the United Kingdom and of the Continent that do not come within the ken of those who are content to travel by rail, and many now make a point of carrying with them a complete camping outfit which renders them independent of inns and hotels, and enables them to pitch their tent and to cook their meals just where they please, and then to sleep the best sleep that there is to be had in the world, namely, that with no other canopy above but the star-studded sky.

* * *

The Newport Amusement Association has now entered on a new lease of life with the election last week of a new set of officers, including Reginald Vanderbilt as first vice-president and Alfred G. Vanderbilt, F. K. Sturgis, Center Hitchcock, E. L. Winthrop, and Hamilton Fish Webster as directors. The new board is inaugurating its rule by a series of automobile races at Sachuset Beach, at the beginning of this month, and is already taking the necessary steps to have a fine sporting park, with an automobile race course and a commodious clubhouse ready for use next summer. There are, according to the most moderate estimates, about 400 motor cars this summer at Newport, which has added to the popularity of this fashionable seaside resort, whereas Bar Harbor is suffering from the effects of the action of its town council, which, while not absolutely prohibiting motor cars, has, nevertheless, placed so many obstacles in their way that one is virtually debarred from their use. Thus, nearly all the leading thoroughfares are closed to motors, with the result that a motor car cannot come to Bar Harbor or leave the village save by boat.

* * *

Even monarchs are not immune from accidents when motoring, and King Edward and Queen Alexandra, who have until now been very fortunate in this respect, were subjected to two very inconvenient breakdowns the other day while on their way from Windsor Castle to Wellington College, where they arrived in consequence long after the appointed hour. The royal couple took the matter very philosophically, although it is no pleasurable experience to be stranded for an hour or so on a dusty country road out of reach of any human habitation or of assistance. The Queen, by the way, is becoming more and more partial to motoring, and has lately purchased three new machines. She has now her own separate motor establishment and chauffeurs, distinct from those of the King.

* * *

Mr. and Mrs. W. K. Vanderbilt, Jr., after having traveled from Paris to Italy by easy stages in their motors—a regular convoy of them—joined their steam yacht, *Valiant*, at Naples, and are now cruising in the Mediterranean. They greatly enjoyed the trip overland, especially through Switzerland, where they were delayed in the Jura Mountains for a couple of days, owing to some defect in the machinery of one of the cars. It served to make them aware of the fact that the fame of the name of Vanderbilt as identified with colossal wealth, had penetrated event the remote Swiss villages, as the country people for miles round dropped their work, donned their holiday attire, and made their way to the inn where the Vanderbilt party was staying, in order to catch a glimpse of the man whose wealth was, in their eyes, so immense as to partake of the supernatural.



FAIR MOTORISTS OF SMITH COLLEGE

(CONTINUED ON PAGE 44.)

High Class Three Orchestras | CAFE DES BEAUX ARTS 80 West 40th St. & Bryant Park | Table d'Hote $1.50 Supper Specialties



MRS. JAMES E. MARTIN, A WELL-KNOWN SOCIETY LEADER, WHO IS OFTEN SEEN IN THE "CATCH-ME"

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THE GARAGE OF AN ENTHUSIAST

By S. B. Stevens

In taking up motoring, I decided to engage in the pastime for health and for pleasure, and I have found both. When at home I take delight in doing all of my own repairing, and in working around the garage, which, as the accompanying illustrations will show, is very complete. It will accommodate six or seven cars, and as many as ten could be cared for by making use of the carriage elevator to the second floor. The equipment I have made as thorough as that of any private garage in the land, and more thorough than that of many of the regular garages.

There are two one-barrel cylinder-oil tanks, for different grades of lubricating oil, and one two-barrel gasoline tank, all located outside of the garage, at some distance away. A Bowser pump in the garage for each fuel and oil tank enables me to draw supplies very easily, and without the least danger of serious fire. These pumps are all self-measuring, so that there is never any possibility of vehicle tanks being either overflowed or left short of their full capacity. Simply setting an index hand to the proper point on a dial, and then turning a handle until the liquid ceases to flow, automatically measures off any desired quantity.

I have also a complete charging plant, consisting of a 3-horsepower generator, together with switchboard, —charging sockets, resistance circuits, etc. This is used for charging electric-vehicle batteries, ignition cells, etc.



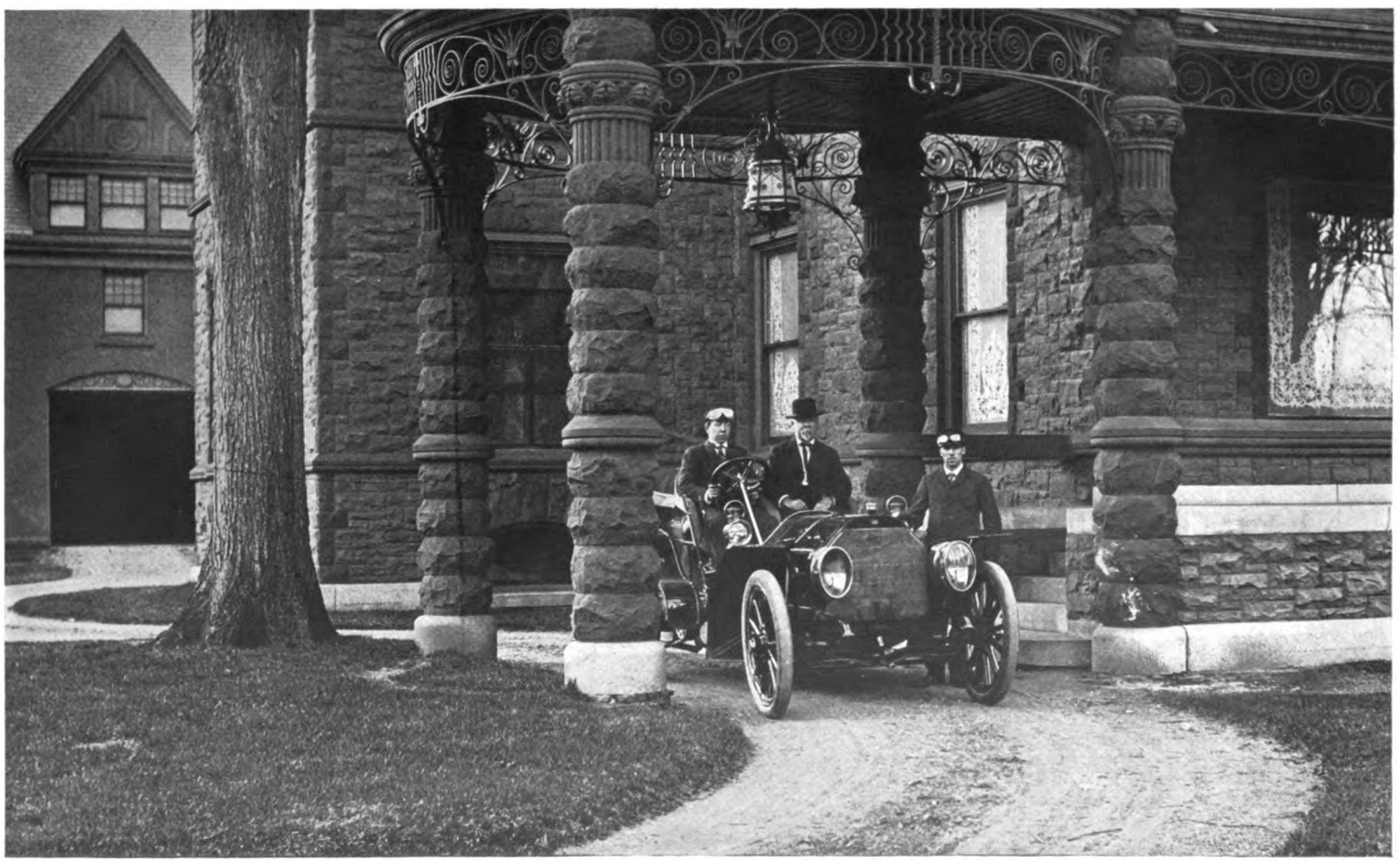
THE BOWSER PUMPING ARRANGEMENT

The machine shop includes all the machine tools necessary to do the most difficult work and most extensive repairs. It has a cement floor, is lighted by electricity, and in every way is up to date in arrangement and equipment. Two engine lathes, one of 9 inches and the other of 16 inches swing, provide means of refinishing old parts, and, in an emergency, of turning out new ones. A 20-inch drill press is capable even of reboring a cylinder. A 12-inch sensitive drill press is exceedingly convenient for a wide range of lighter work. A power hack saw reduces hand work and labor cost to a minimum in heavy repairs or experimental work. A power scroll saw is convenient for repairing or remodeling bodies and will cut not only wood but light sheet metal—aluminum, brass, lead, etc. A tool grinder and twist drill grinder make it simple to keep drills, lathe tools, chisels, punches, etc., in the very best possible condition without outside work. Besides the machine tools there are bench and small tools, a forge, blacksmith's tools, spare parts, etc., to the value of about $1,500.

One by one I have added to my motor stable until to-day I have a generous supply of cars. The progress of improvement is steady, and I am trying to keep up with the times, which may mean enlargement of my already commodious quarters, unless I decide to invite my fellow Romans (I live in Rome, N. Y.) to a bargain sale.

My first care was a National electric runabout, which I bought at Chicago in February, 1901. Next I acquired another electric runabout, this being a Waverley, and after that came a surrey of the same make.

In the spring of that year I invested in a Gasmobile stanhope, and my reason for its selection existed in the fact that it was then the only American car that possessed a multi-cylinder engine. Shortly after buying the Gasmobile I made a trip to Buffalo and return, and I suppose this journey was the most enjoyable motor run I will ever take, as it was all so new and novel. The sense of free-



MR. STEVENS JR. AT THE WHEEL. ACCOMPANIED BY MR. STEVENS. SR.

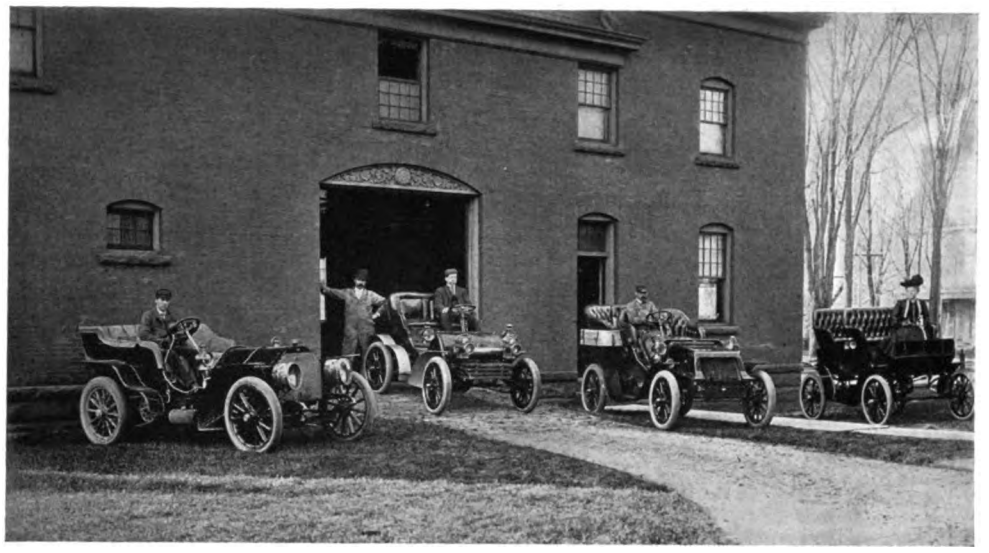
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dom as I traveled along I will never forget. That trip settled me once and for all time in the motor ranks. In August I added another Gasmobile to my stable. This was an entirely different car from the other, and was called a "Special." It had side chains, sliding gear transmissions, and wheel steer, and also a few other changes from the regular car which had been suggested by me, for I had already started to outline pretty nearly what I wanted in a car. In this second car I covered over 15,000 miles, for it ran well all the time.

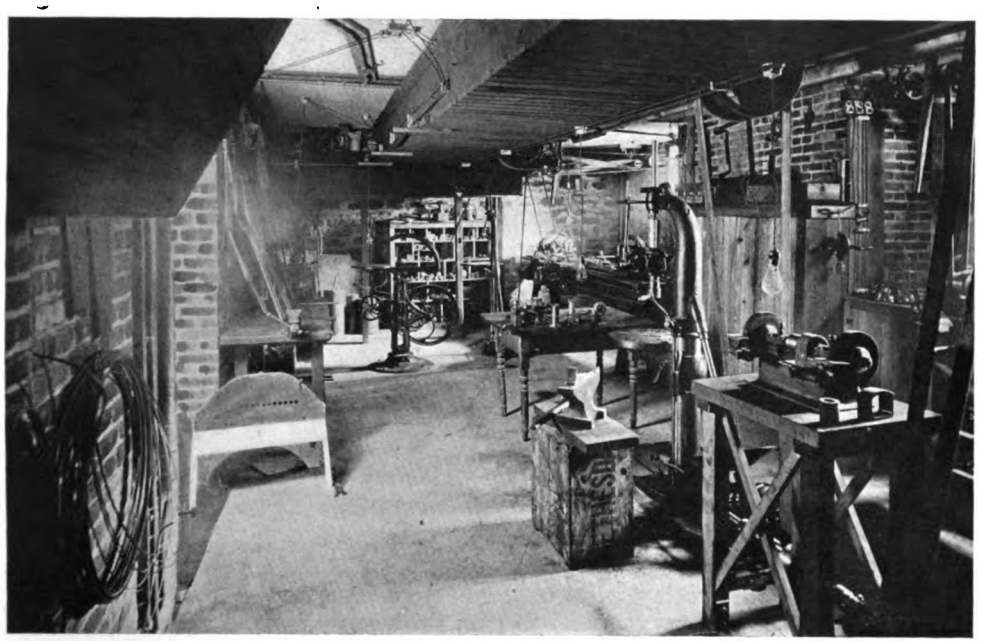
In 1903 I began investing in the Mercedes type, first a 35-horsepower, then an 8-10-horsepower, and finally in the fall the 60-horsepower, which I drove in the Ormond-Daytona races.

In June of this year I bought a Winton touring car, and recently two Darracqs, a 15-20-horsepower with landaulette and a 30-35-horsepower double phaeton with a side-entrance body, have been given storage room. The larger powered one I used in my July trip to the World's Fair.

It is quite probable that I shall be in a position at Ormond-Daytona next winter to oppose the fastest cars there with a new flyer. I do not take part in track racing at all, owing to the wish of my parents, but on the fast and safe Florida beach I can see no reason why the mile record should not come down to the half minute, provided a car is constructed for the purpose.



A QUARTETTE OF THE STEVENS ARRAY OF MOTOR CARS



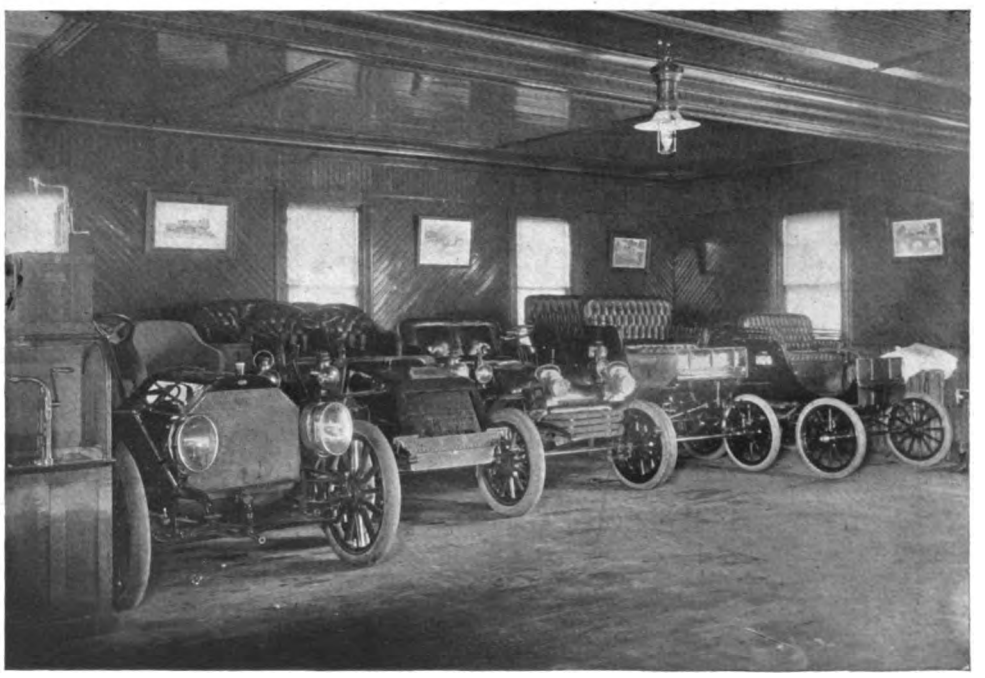
COMPLETE IN DETAIL IS THE MACHINE SHOP

An electric car, on a specially-built straightaway track, in Germany, has already made a mile in 27 seconds—13 miles an hour—and there is no reason why a high-powered motor car should not do at least as well on the wonderful course of hard sand which has made Florida famous. In fact, there is every reason to believe that within the next year or two records may be established, the breaking of which will furnish occupation to our European friends for a long time to come. From all standpoints, those of sport, speed, and safety, this competition is undoubtedly the acme of motor sport and one has only to indulge in it on that wonderful wave-washed stretch of sand to become aware of its delights. No danger menaces, there is the wide and open speedway, and one has only to utilize every bit of horsepower contained in his throbbing monster. It is a grand course, and one not equalled in the world, and the third meet should bring together the greatest gathering of motorists ever seen.

MOTOR BOATING'S GOOD POINTS

Motor boating is an ideal sport for the overworked business men of our larger cities, who need at least two months' vacation every year and can only get two or three days off at a time. Right here is where the power-driven launch comes as a great boon and comfort. One can depend upon it to make its reasonable schedule like a railroad train or a passenger steamer, while a sailboat must wait favorable winds. One's private craft, in or out of commission, perhaps in an hour, will lift the weight of confined work as quickly as anything else in the world. There is no tonic like the sun and the wind.

One can frequently get more health, strength and memorable joy out of a week's trip this way than from a sea voyage to Europe or a month at a fashionable resort—and at less than half the cost. One is never more than an arm's length from nature, and on occasions one can steal up to her bower and peep into her very secrets. You can drift silently into the deep morning and evening shadows under the overhanging boughs, study the ever-changing banks and the birds, even the splendid reeds and rushes. And when duty calls, you can start back any moment with the comfortable assurance of getting home "on time."



AN INSIDE VIEW OF THE GARAGE

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THE DARRACQ THAT FRANK LA ROCHE AND A. J. PICARD RAN 1053 3-5 MILES WITHOUT STOPPING

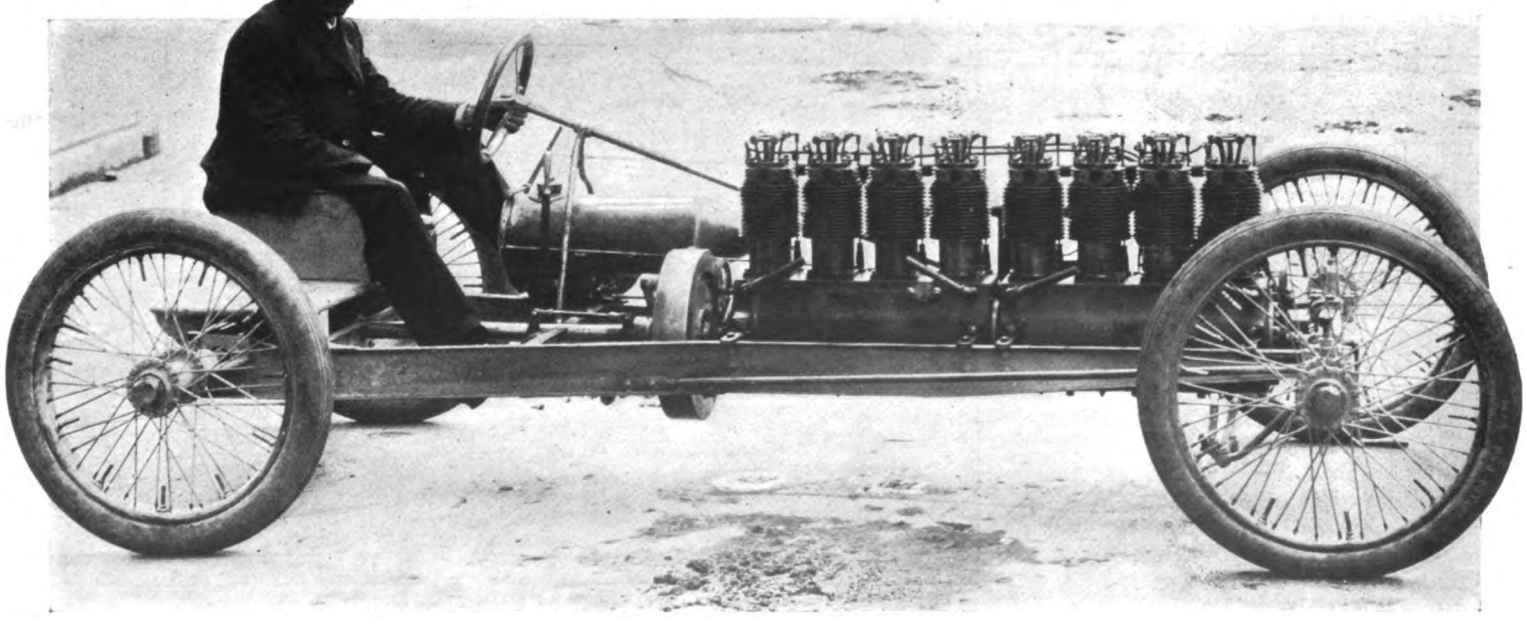
THE WORTH OF THE NON-STOP RUN

There is no question but that, as one maker has put it, "it is the thousandth mile, rather than the first, that proves the worth of a car," and it is just this capacity for regular and prolonged running, under the frequently severe exactions of ordinary travel, that the public is commencing to insist upon, and which is proving the modern motor car to be an output of cumulative engineering effort, rather than a product of freakish invention.

The recent 1,053-mile run of a 24-horsepower Darracq, over the roads between New York City and Boston, without its engine being once stopped, has given new prominence to the "non-stop" run, and it seems fully established that this form of contest generally must meet with both official and unofficial recognition as an excellent means of showing the reliability and all-around merit of different makes of motor cars now so generally coming into use.

The endurance contest, as distinguished from a race, has always had the stout approval of many who have enthusiastically interested themselves in the motor car's development, but who have as vigorously opposed motor speeding. A non-stop run is an endurance contest, and if successfully carried through, is practically an endurance test undergone with a perfect performance. In the older and better - established fields of engineering, it is not common for machinery of one kind and another to be kept continually in operation for protracted periods, and in the nature of things, it has been necessary for the motor vehicle to reach this standard of practicability before deserving popular consideration as a perfected mechanism. Stationary steam engines run for months with never an instant's pause; and electric motors and dynamos, and even steam locomotives and electric cars are equally certain in their operation.

The route taken for the Darracq test was the 348 3-5 mile stretch between New York City and Boston, by way of Hartford, Springfield and Worcester. The record doubtless would have been much better had the run not been brought to an untimely conclusion, when the car was within 80 miles of having covered the course four times. The misadventure consisted of an encounter with a frightened hippomobile outfit, consisting of a lady and a horse who had conflicting ideas concerning the proper navigation of a buggy that formed the third element of the uncertain combination. The result was that the motor car had to be run into the ditch, to save human and equine life. Had this mischance not intervened, it is altogether possible that a record might have been made exceeding even the remarkable 2,000-mile non-stop run just reported from England. The first non-stop run of importance was made by a French car; but, soon after, a Napier car in England set a considerably better mark by running 1,027 miles. This last record stood until superseded by the Darracq, driven by Frank La Roche and A. J. Picard.



THE EIGHT-CYLINDER, AIR-COOLED PREMIER "COMET," WITH GEORGE WIDELEY AT THE WHEEL

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TO THE CRATER OF VESUVIUS

By "B. L."

NAPLES, July 5, 1904.

EDITOR OF MOTOR.—Your correspondent here is a wonder. He heard that I had climbed Mt. Vesuvius in a motor car, and he pounced upon me like a whirlwind.

"Won't you please write something for MOTOR about your wonderful trip?" he said.

"It wasn't a wonderful trip," said I.

"But you can write something about your experiences," urged he.

"But I had no experiences," insisted I.

"Can't you say something about the road?" persisted he.

"But there really is no road," protested I.

"Then about the view," begged he.

"It was so misty," I explained, "that we really had no view."

He scratched his head for a moment, then, with a look of incredulity:

"Did you really go up in a motor car?"

I admitted it, and his face cleared.

"I'm sure you won't mind putting it in writing, will you?"

And then I succumbed and promised I would give it to you in writing. And here it is.

We climbed the volcano as far as any horse-drawn vehicle could proceed, and only stopped when that sloping wall of lava that runs to the crater confronted us. As far as the Observatory there runs what the Neapolitans call a road. It is a public highway and there are even a few farmhouses beside it whose occupants gasped and crossed themselves to see a motor car heading skyward. Beyond the Observatory there is another state of affairs that is also called a road in those parts. It is the private property of Thomas Cook & Son, and he who traverses it is mulcted right royally by its proprietors, for the privilege. When you reach the end of this incline you see ahead of you the funicular railway which rises almost with the slant of an elevator.



THE HOTCHKISS AND ITS PASSENGERS TO THE CRATER OF VESUVIUS

We went this far, looked around through the haze that obscured the landscape below us, and then, like the Duke of York, went down again.

And that is really all there is to tell. But your wonderful correspondent is at my elbow and howls for details.

Our machine was a Hotchkiss of 20 horsepower. It is a new machine, and is, without question, a coming motor car. Fournier told me in Paris that, in designing it, he had utilized his experience of eight years with all kinds of machines to get away from those disorders and breakdowns and clogging of parts that make motoring so trying at times. I took this, of course, as the natural pride of a designer in his own creation. But the Hotchkiss for me! Five thousand six hundred and fifty miles in this same machine, and not a moment lost for accidents, not a single stop except for tires or gasoline, and the mileage including some roads the very recollection of which gives me the horrors.

Well, we left our hotel in Naples shortly after noon. There were four in our party besides the chauffeur and a photographer. The photographer had agreed to point out the road. Do you know the streets of Naples? Or the roads around it? Dio mio! as the Italians say. Every little while we came to a stretch of road that looked quite decent in comparison with what we were on, but the photographer waved a warning arm.

"The other road! To the left!" And we would bump merrily on and gradually the road would become worse.

Presently we passed up a short side street paved largely with holes, then round a corner and—zoomp! We had begun to run smoothly. I glanced quickly at the wheels and saw that we were about one-third up to the hub in what looked very much like black sand.

"We are on Mt. Vesuvius," said the photographer proudly. "This road is built out of solid lava."

Somewhere in a remote corner of my brain I kept turning over and over again those words, "road" and "solid lava." There was something fascinating about them. How the machine ever did it is a mystery to me. Under the first speed, but with full power, we just plowed through that soft, black powder, up, up, up, wondering vaguely how long it would last, and when the motor would stop. Of course, there was always the feeling of satisfaction that if anything did break we couldn't slide downward very fast through that soil. But nothing broke, and that's probably what makes it so hard to write about it. We just continued to go up until a man at Cook's gate held out his hand for money.

Occasionally the photographer would wave his hand wildly and cry:

"Not that way! You're getting off the road."

How he knew I could not understand. On the road and off the road looked alike to us—just crumbled lava. Several times we stopped to admire the view below until we lost it in the haze, and each time I descended from the seat feeling that I was giving the machine a rest. Isn't it strange how, during a long journey, you come to look upon a motor car almost as you would a favorite horse—feel that it has sensibilities and is entitled to consideration? And the chauffeur kept shaking his head and muttering to himself:

"Bad business. This road was never meant for motor cars. This can't last. Something will bust."

(He was a cheerless cuss, that chauffeur. I verily believe that his nights were haunted with nightmares of breakdowns on steep mountain sides.)

But nothing busted, and when we started again, the darling

(CONTINUED ON PAGE 46.)

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A TOUR OF A DAY IN EASTERN MAINE

By Robert Bruce

The motor car is no longer a novelty on the frontiers of the United States. As a result, there is a better popular knowledge of our national geography, and a sheer multiplication of the outings within reach of the man with a motor car, whether he be a resident of some large city or of an inland country town.

One of these "little tours," which will long remain a pleasant memory in the minds of two, was a one hundred mile run in the extreme eastern part of the Pine Tree State, made in the course of a recent vacation trip. It discovered unexpectedly good roads, superb scenery, fair hotel accommodations and a climate that, during the heated term at least, cannot be surpassed for its delightful coolness and comfort. Such a journey should be taken, however, with a light runabout rather than with a big touring car, not only because of the necessity for sending it part of the way up the Maine coast by boat, but also because accommodations and fuel supplies for the machine en route are anything you can get in a section that has not yet made any formal preparation for the entertainment of automobiles. Under such circumstances it is occasionally worth while to have a car that can be stored in a place of limited size.



A CAMPING PARTY NEAR GARDNER LAKE, ON THE ROAD FROM MACHIASPORT TO LUBEC, ME.

Arranging for the transportation of our eight-horse-power runabout on one of the steamers that go up and down the Maine coast in summer, an old college chum and I sailed out of Portland harbor one evening just as the sun was sinking over the beautiful Forest City. Within the next hour or two we passed hundreds of tree-covered islands in Casco Bay, and when wearied of the seemingly never-ending view of the rock-bound shore, we took to our berths. Early the next morning we were at the wharf at Machiasport, ready to begin our journey, with gasoline and other supplies brought from Portland, so as to be sure of them before starting out.

After riding about five miles we reached Gardner Lake, a beautiful sheet of water in the still woods, the roads in this vicinity leading through a forest of noble pines, with now and then a glimpse of the lapping waters. Next we passed the little village of Whiting, and before we were fully aware the church spires of Lubec appeared in view. The twenty-five miles from Machiasport had been covered, with several stops, in less than three hours, and the forenoon was only half spent. Had a special effort been made the distance might have been covered easily in an hour and a quarter, which would be good riding.

Lubec is a picturesque little place, situated on a high bluff opposite the Island of Campobello on the St. Croix River, now coming into some prominence as a summer resort district. The principal industry hereabout is the catching and packing of sardines and herring, and an exploring expedition would doubtless have revealed many points of interest. But we wanted to take dinner at Campobello, so we crossed over and spent the remainder of the forenoon looking over the island, which is seven miles long and three miles wide. It was the first motor car of any description some of the native islanders had ever seen, and their curiosity was unbounded, There are fairly good roads on the island and many places of interest, among them Glen Severn and Friar's Head.

Immediately after dinner we took a rather long ferry from Campobello to Eastport and started for Calais, the principal lumber market of that section of country, situated at the head of navigation on the St. Croix River, which is the boundary line for a considerable distance between Maine and the province of New Brunswick. The road up from Eastport was good, and led through a green and fertile country. Arriving at Calais, after a two-hour run which seemed even shorter, we decided to spend a little while looking about the city and tripping across the river to the quaint old town of St. Stephen. Over there we barely escaped a mishap by forgetting to turn to the left, as is the custom in the British Provinces and in England; but luckily came off without serious consequences. Calais has many fine residences and some excellent summer hotels. In the vicinity are several great lumber mills, busily engaged in sawing up the products of the forest, while the river is full of sail and steam craft waiting to carry the lumber to all parts of the world.

This was our farthest-out point, and it was only mid-afternoon, promising a safe return in good season to Machiasport, if nothing unexpected happened. Instead of retracing our route so far, we decided, upon the advice of a merchant in Calais, to cut straight across via Dennysville to Gardner Lake, and we were not disappointed in so doing. Dennysville is a gem of a country village; noble elm trees form archways over the smooth streets, while large, square houses, set somewhat back from the streets, give the unmistakable New England aspect to the place. Here many retired shipmasters have come to spend their declining years after buffeting the winds and waves for many seasons in various parts of the world. The streams in the neighborhood—many of which are crossed, no matter what the direction taken—abound in salmon; and the tables of the little hotels are seldom without their specimens of this king of the trout family.



A MAP OF THE TOUR

At Dennysville the first desire to make speed back to the starting point came upon us, and we let

(CONTINUED ON PAGE 60.)

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THE BATTLE OF THE MASTER FORCES

By Charles Quincy Turner

SYNOPSIS OF PRECEDING CHAPTERS.

While conversing in Paris, Tom Compton, Lucien Lancaster, and their friend, Oslaldistone, fall into a discussion concerning the practicability of aerial navigation. Lancaster finally wagers $1,000 with Compton that he can reach South Africa from Paris quicker by an airship than Compton can go the distance by motor car. Lancaster is a trained engineer who has spent much time experimenting with flying machines. His sister, Lavinia, who was responsible for his original interest in aerial navigation, worked with him, and for a number of years the two made many balloon ascensions. Lancaster's "Man Friday," Ben, is cabled to at once: "Bring over the *Ariel* by *La Champagne* to Havre."

Compton is as thoroughly up in motor cars as Lancaster is in flying machines. He finally decides that the most feasible way is through Algeria, to Lake Chad, to Fashoda, to Bulawayo, and thence on to the Cape by way of British South Africa. Incidentally he runs across a graduate of the African slave trade, one Kismet, who is familiar with every inch of Africa, and retains his services. He has a special motor car designed and built for the work, and has shipments of supplies arranged at different points. Another package, the contents of which arouse the curiosity of his friends, is consigned him in Paris by a well-known manufacturer of fire-fighting apparatus.

Meantime, Lancaster concerns himself with the problem of provisions. This settled, his next work is hastily to assemble the *Ariel*. Lancaster decides that his course shall be to follow the westerly surface winds across the Atlantic until near the coast of South America, and then tack back in the upper air currents to South Africa. The start is made, Lavinia accompanying her brother, but first sending a rose to Compton. Compton proceeds to Marseilles, and Lancaster, the winds proving favorable, makes the first stage of the flight, to the Azores.

Compton, after crossing the Mediterranean, decides to go through Tripoli instead of Algiers, because he concludes that the caravan routes are better through that country and also because Kismet has private reasons for not desiring close touch with the French authorities. From the city of Tripoli to Ghadames, Ghat, Aheer, and then to Kuka, on Lake Chad, the trip is highly successful and without incident. The route is now east, through Abesher, El Fasher and Fashoda, on the White Nile. The first stages of this prove easy, but a tiresome two days' fight with the desert intervened before the last named place was reached.

While Compton is thus occupied Lancaster spends twelve days at the Azores, conducting observations on the wind currents. He finally decides that his theories are correct, and that seven days should suffice for reaching his journey's end, the balloon being carried by the east wind and the steering apparatus depended upon for southing. All goes well to the Canary Islands, the Congo River, the Zambesi, and then—the three occupants of the balloon are made unconscious by the rarefied atmosphere at a height of seven miles, to which the great heat of an immense forest fire has forced them.



Photo by Dr. James Johnston — Copyright by Fleming H. Revell Co.

THE PRIVATE BAND OF HIS SABLE MAJESTY

CHAPTER VII.

Compton's first question at Fashoda, as soon as the formalities of their reception by the astonished local authorities were through, was for his consignment of gasoline. Yes! it had come up by the Nile, from Khartoum, more than a week before, much to the wonder of the British officer in charge, who knew no use for it in that high region. Explanations were needless now; he knew for what purpose it had been consigned, and was extremely interested in the details of their desert journey and their future plans. Their presence was as welcome as a passing ship to the lonely islander in the Pacific. His next anxiety was to ascertain the present condition of the waters of the Nile above him. Speke and Baker had, in 1863, come down it; could he go up? That is to say, was it now navigable? If it was, he knew he could negotiate it, and with his own motor car, too; he had thought the whole subject out in England, and demonstrated it, too, and the secret was in the two packages marked "Fashoda" and "Merryweather." After diligent inquiries he found an old river pilot, Mlaringo, who had been taught the elements of English in his youth, at the Austrian Mission Church, which had then been established at Gondokoro, on the Nile, 400 miles above Fashoda, in the days before the Madhi (whose power was crushed at Khartoum) had wrenched the Upper Soudan from Egypt and devastated it. He had come down from that point to Fashoda with Speke and Baker, the explorers who first traced the Nile to its source in Lake Victoria Nyanza, and had lived in the neighborhood all his life. Since security had been assured by the British gunboats, whose headquarters were to the south. at Khartoum, the old days of river traffic were coming to life again, and he had twice in the past few years been up the lake. He was sure that the navigation was open, except, of course, at the cataracts, of which there are two considerable ones, always passable to boats coming down, but not always to boats going up; but the portages were not difficult. He would go, certainly! for a consideration; but where was the boat?

That was Compton's business and he proceeded at once to answer the question. The motor car was mounted on a frame and the tires of the wheels taken off. Then the "Fashoda" packet was opened, and new tires put on the wheels, which converted the surface of each wheel into a most effective paddlewheel, the model of all paddlewheels on the outside of vessels, the world over. The "Merryweather" package then gave up its treasures. They consisted of two flat, strong, india-rubber bags, and an inflating pump, which, in a very little while, converted the inert, flabby sheets into two cigar-shaped pontoons—joined together like Siamese twins—and between them was a flat centrepiece, which, when the whole was immersed, occupied the position of the centreboard of a yacht. Here was a ready-made catamaran, and when the motor car was carefully run out on to the top of them and fastened, and the whole ballasted, the four paddle wheels all touched the water, and five minutes' revolutions stirred up the waters of the Nile to a new sensation. Compton could utilize the waterways with honor, because his motor car was the motive power. It would travel over water instead of sand, that was all. True, but it was a great deal. It would enable him to overcome the really difficult part of his route, the equatorial jungles. His course would be up the Nile, from the tenth parallel, where he was, to Lake Victoria Nyanza, whose northern line is under the equator, across that, and one of its tributaries, to the south, down Lakes Tanganika and Nyassa, to the head of the navigation of the Shire River; in all, a distance of close upon 2,000 miles.

The motor car paddle wheels answered every expectation. They worked without a hitch, rapidly and effectively, enabling a speed to be maintained equal to that on land. The only danger to be guarded against, in very high speed, was colliding with a sleepy alligator, or an hippopotamus, hardly discernible just below the surface. However, there are risks everywhere.

The start was made at daybreak, and before sunset Ghaba-Shambel had been reached and 250 miles had been reeled off. The next day found them at Gondokoro, where the shell of the Austrian Mission Church, and the brick house belonging to it, were silent witnesses to the earliest explorers. It was at Gondokoro that Speke, who had come down from Victoria Nyanza by canoe, met his no less celebrated contemporary, Baker, who had come up the Nile from Khartoum on a native sailing boat, and two hemispheres had met.

One day was given up to Mlaringo, to enable Compton to look up old acquaintances, among whom he reckoned an expert on the waters. He found this one, who gave the welcome assurance that he could show how to haul the motor-car paddle-boat up the rapids. It was worth staying a day to find so useful an ally. True to his word he did, and in two days the motor car was floating on the waters of the lake, having accomplished in that time what had cost Speke six weeks of untold trouble.

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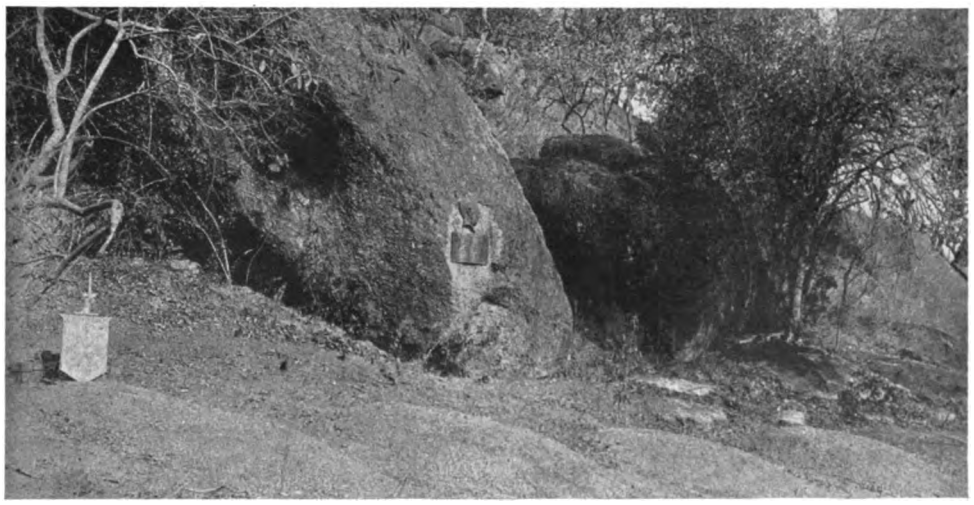
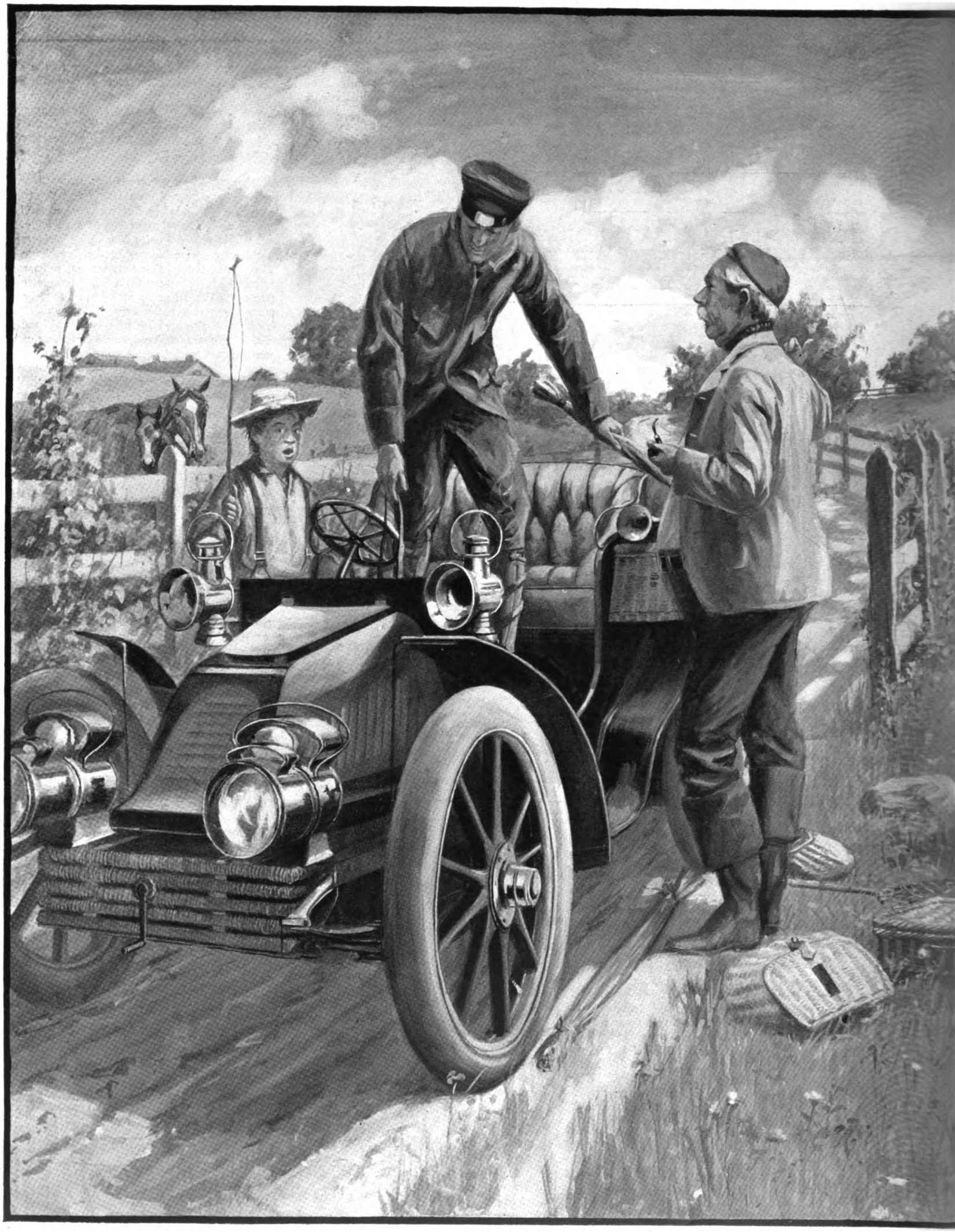


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THE GRAVES AT LIVINGSTONE ON THE SHORE OF LAKE NYASSA

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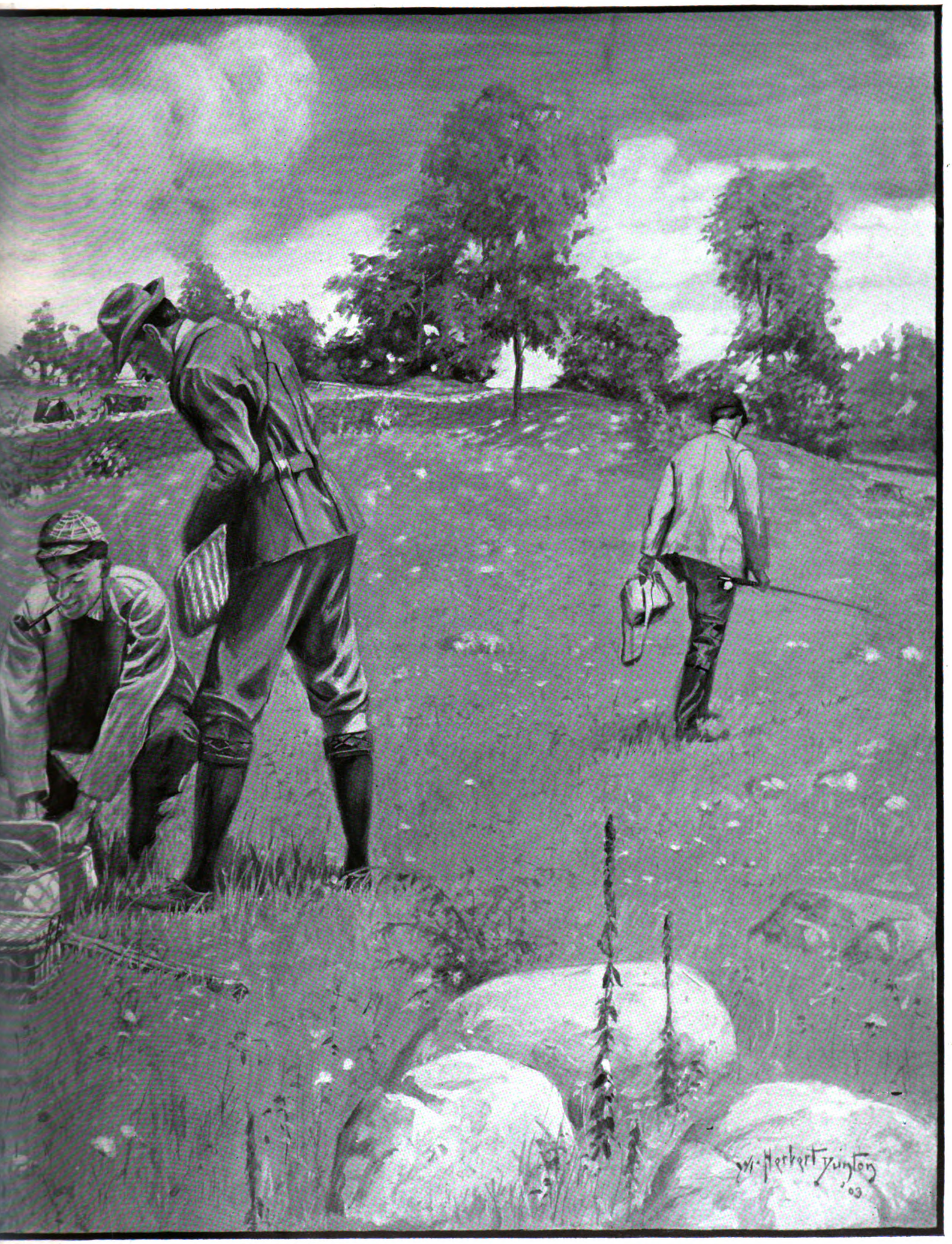


A TWENTIETH-CENT

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OR

1904



RY TROUTING TRIP

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LITTLE LESSONS IN MOTOR MECHANICS

By Victor Lougheed

Most automobiles are propelled by "gasoline engines," or more properly, by *internal-combustion engines* in which gasoline is fuel.

In its simplest form, such an engine consists primarily of a *cylinder* and a *piston,* the piston fitting closely but loosely within the cylinders, so that it can slide back and forth, and being connected with a *rotating shaft* through the medium of a *connecting rod* and a *crank.* These several parts of a gasoline engine are sketched in cross and side section at A and B, Fig. 16, in which *a* is the cylinder, *b* the piston, *c* the rotating shaft, *d* the connecting rod, and *e* the crank.

The power developed in a gasoline engine comes from the ignition of mixed air and gasoline vapor in the space *f* above the piston. The ignition of an explosive mixture in this space, by an electric spark or otherwise, causes it to become highly heated, with the result that it expands, exerting a considerable pressure on the piston head. This pressure forces the piston down, thus imparting a rotational movement to the shaft *c,* which as it continues to rotate forces the piston up again. Thus there is a continuous rotation of the shaft in one direction, accompanied by up-and-down movement of the piston.

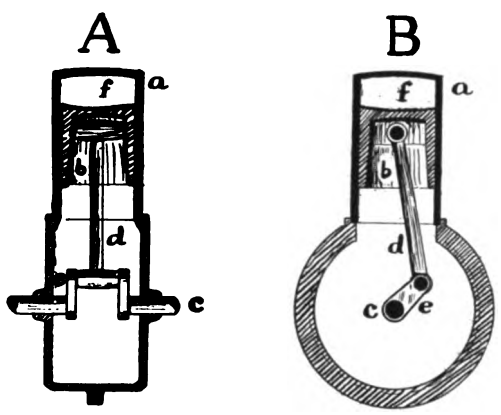


Fig. 16.—Two Views of a Gasoline Engine

In utilizing an explosive mixture to run an engine, it is necessary to provide for four operations, *induction, compression, explosion,* and *exhaust.* The manner in which these occur in a *four-cycle engine* is shown in Fig. 17, in which A represents the engine at the commencement of the induction stroke, the piston *a* moving in the direction indicated by the arrow, and the inlet valve *b* being open; B represents the commencement of the compression stroke in the same engine, both inlet and exhaust valves, *b* and *c,* being closed; C represents the commencement of the explosion, or power, stroke; the valves remaining closed and the ignition being effected by an electric spark jumping between the terminals *d* of the *spark plug e;* and D represents the commencement of the exhaust stroke, the exhaust valve *c* being open and the inlet valve *b* being closed. It is thus evident that there is but

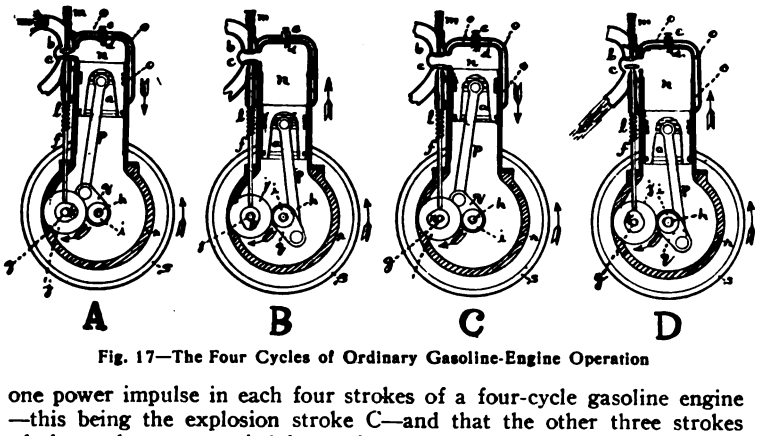


Fig. 17—The Four Cycles of Ordinary Gasoline-Engine Operation

one power impulse in each four strokes of a four-cycle gasoline engine —this being the explosion stroke C—and that the other three strokes of the cycle are occupied by various operations preliminary and subsequent to the power development, these being effected by the pumping action of the piston as it is continued in movement by the momentum of a fly-wheel or by power developed in other cylinders connected on

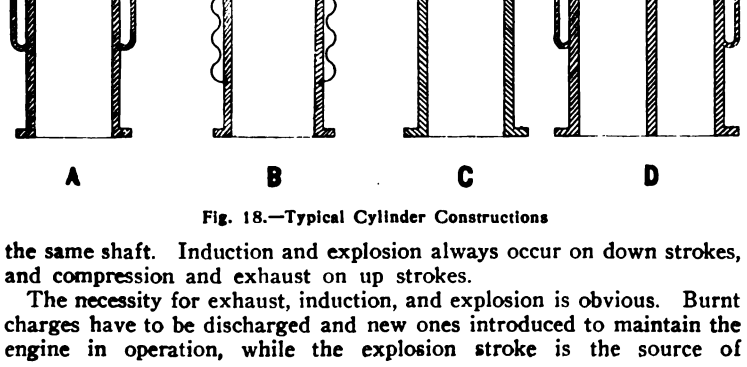


Fig. 18.—Typical Cylinder Constructions

the same shaft. Induction and explosion always occur on down strokes, and compression and exhaust on up strokes.

The necessity for exhaust, induction, and explosion is obvious. Burnt charges have to be discharged and new ones introduced to maintain the engine in operation, while the explosion stroke is the source of power. Compression, while it can be dispensed with, facilitates ignition and adds to the efficiency of combustion, in ways rather too obtruse to be explained clearly herein.

Though there is considerable diversity of practice in gasoline-engine construction, there is a marked tendency to standardize many details.

Cylinders are almost universally made of soft, gray cast iron—the *wall, head,* and *water jacket* being cast in one piece; the wall and head cast in one piece; or the jacket, head, and wall all made separate. *Attached water jackets* are generally made of copper, brass, or aluminum. In some built-up cylinders, steel is used for the cylinder proper, the jacket and sometimes the head, being made separately and of other material. A typical cylinder cast *integral*—in one piece—is shown at A, Fig. 18, while B shows a cylinder with separate water jacket. C is a cylinder with attached head. Multi-cylinder engines often have cylinders cast in pairs, as shown at D, Fig. 18. The advantage of cast iron for cylinder construction is that the small percentage of free graphitic carbon which it almost always contains much simplifies the problem of lubrication.

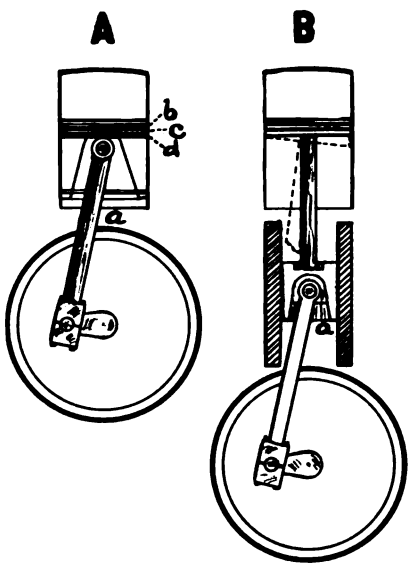


Fig. 19.—Trunk and Disk Pistons

Pistons are usually made of the same material as cylinders, and in gasoline engines are almost always of the *trunk* pattern, shown at A, Fig. 19, thus avoiding the necessity for a *crosshead,* which is necessary with *disk* pistons, B, Fig. 19, in which *a* is the crosshead, to keep the piston from tipping over as indicated by the dotted lines. Because of its rapid reciprocating movement, necessitating continuous reversals of direction at high speed, a piston must be as light as is consistent with sufficient strength for the service required of it. Such lightness is obtained by boring the piston out from the bottom in the manner shown at *a,* A, Fig. 19. Only enough material is left to withstand the pressure upon the piston head, and provide sufficient bearing surface against the walls of the cylinder. To insure a gas-tight fit between piston and cylinder wall, grooves are usually turned in a piston and in these grooves are placed *piston rings*—consisting simply of light steel or cast-iron rings, cut open at one side, and slightly larger in diameter than the cylinder, so that they spring evenly against the cylinder wall all around. Piston rings are shown at *b, c,* and *d,* Fig. 19.

A **Connecting Rod** is shown at A, Fig. 20. Connecting rods are invariably made of steel, this metal combining a maximum of strength

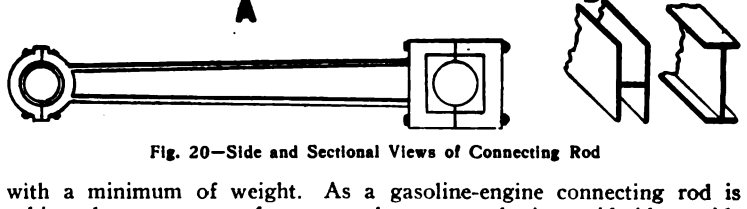


Fig. 20—Side and Sectional Views of Connecting Rod

with a minimum of weight. As a gasoline-engine connecting rod is subjected to two sorts of stresses—those set up by its rapid side to side vibration, and the pressure imparted through the piston upon its end—it is in these two dimensions that the greatest strength is necessary. Consequently, connecting rods are usually like B or C, Fig. 20, in cross section.

A **Crank** for a gasoline engine is illustrated at A, Fig. 21. A shaft carrying a crank is called a *crankshaft,* several typical forms of which are illustrated in A, B, and C, Fig. 21. In B and C, it will be noticed that cranks are provided for more than one connecting rod, and such a shaft is called a "three-throw shaft," a "four-throw shaft,"

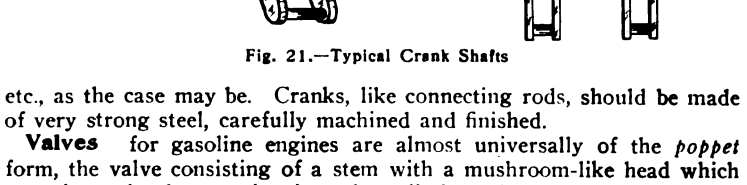


Fig. 21.—Typical Crank Shafts

etc., as the case may be. Cranks, like connecting rods, should be made of very strong steel, carefully machined and finished.

Valves for gasoline engines are almost universally of the *poppet* form, the valve consisting of a stem with a mushroom-like head which seats in a circular opening into the cylinder. At the point of contact

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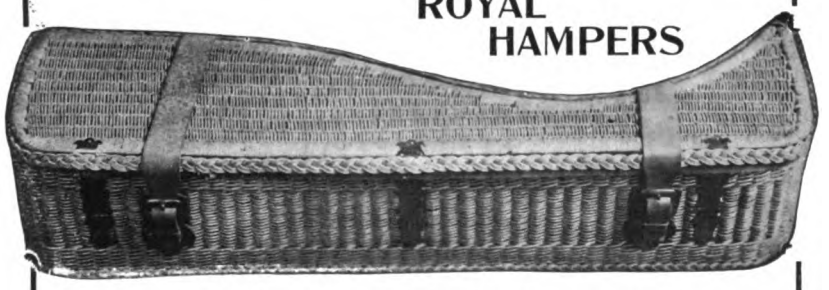


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between the valve head and its seat, the faces of both are usually mitered, as shown at *aa*, Fig. 22. It is evident that with a valve of this pattern a slight lift makes a considerable opening into the cylinder, while at other times the pressure in the cylinder seats the valve very tightly. Because of the high temperatures to which exhaust valves are subjected when in use, they must be made of metal that will neither burn nor warp when maintained for a long time at a dull, red heat. Nickel steel, with a very large percentage of nickel, is generally considered the best material. Inlet valves give less trouble, for they are cooled by the incoming charges, which have a marked refrigerant effect as a result of the evaporation in the carbureter.

Besides the main elements of a gasoline engine, there are required *valve mechanisms,* for operating the valves; *cooling systems,* for keeping the cylinders cool despite the heat of the explosions; *mufflers,* to deaden the noise made by the escaping exhaust gases; and *controlling* and *governing devices,* to govern the operation of the engine. There also are required *carbureters,* for vaporizing liquid fuels, by the ordinary process of evaporation, so that they can be utilized in gaseous form; and *ignition systems* for generating electric current and applying it to the production of sparks in the cylinders at the proper moments, but as these are matters of much importance and some complication, they will be made the subjects of separate lessons.

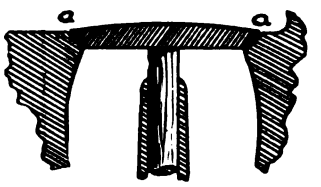


Fig. 22.—Poppet Valve

A Valve Mechanism in its simplest form is shown in Fig. 17. Such a mechanism consists simply of the *valve stem f;* the *half-time shaft g,* rotated at one-half the speed of the engine main shaft *h* by the gears *i* and *j* and the cam *k,* attached to the half-time shaft in such a manner that when in the position shown at D it lifts the exhaust valve from its seat, at all other times permitting it to remain closed, through the action of the *spring l.* Many valve mechanisms are more complicated than this, especially if the inlet valve as well as the exhaust valve is mechanically operated. In the latter case, the inlet valve may be operated in a manner similar to the exhaust valve, by means of a separate cam and valve stem or by other means. Many inlet valves operate automatically, that is to say, there is no positive mechanism provided for opening them at the proper time, they simply being held normally upon their seats by the spring *m,* Fig. 17, and opened through the suction created in the cylinder by the downward movement of the piston, as at A, Fig. 17. Even with mechanically operated valves, both inlet and exhaust, a spring is invariably depended upon for closing, only the opening being effected by mechanical means, and the spring closing the valve again as soon as the opening mechanism ceases to act.

Cooling Systems are necessary for all gasoline engines, as the combustion in such an engine occurs at such high temperature that the cylinder walls, exhaust passages, etc., become very hot upon prolonged running. With an engine not provided with means of cooling, this heat may in a short time rise so high as to warp or otherwise break down the cylinder, even should trouble not be experienced with the lubricating oil much earlier. There are two principal means of cooling gasoline engines—*air cooling* and *water cooling.* To cool a cylinder by air, it is customary to provide it with *flanges, pins, ribs* or similar projecting members by which the cylinder surface exposed to the air is greatly increased, and rapid dissipation of the heat insured. Typical

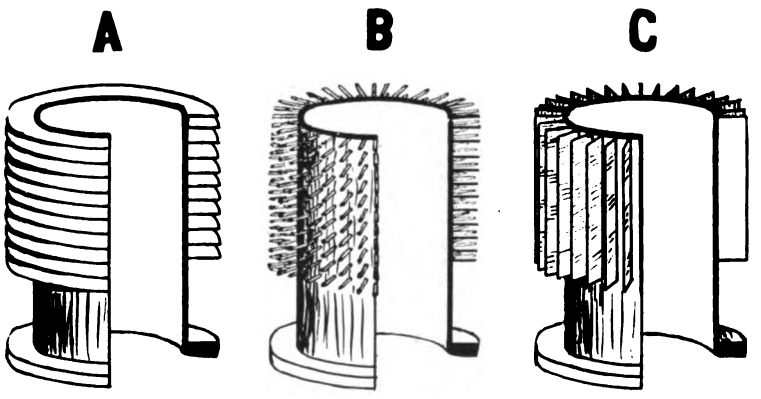


Fig. 23.—Air-Cooled Cylinders

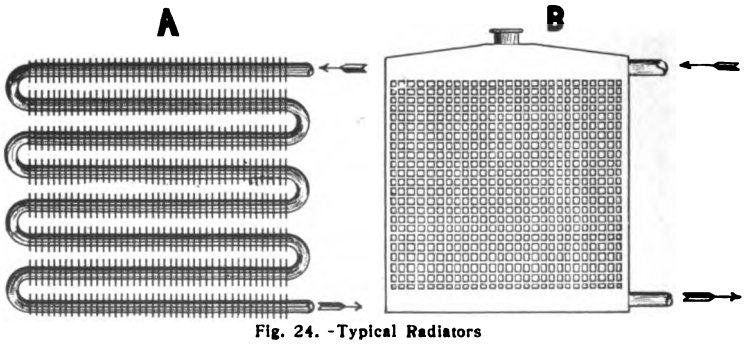


Fig. 24. -Typical Radiators

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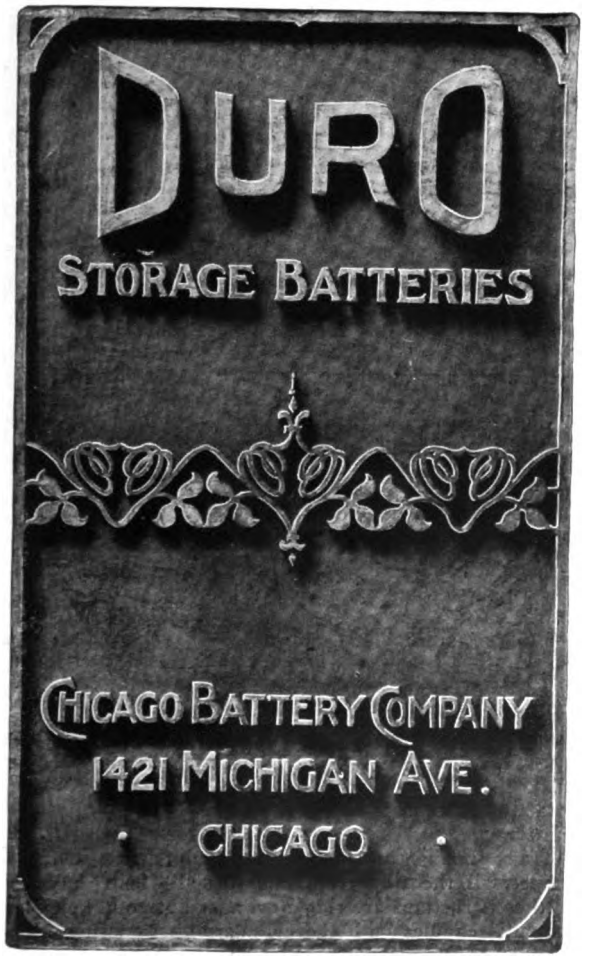
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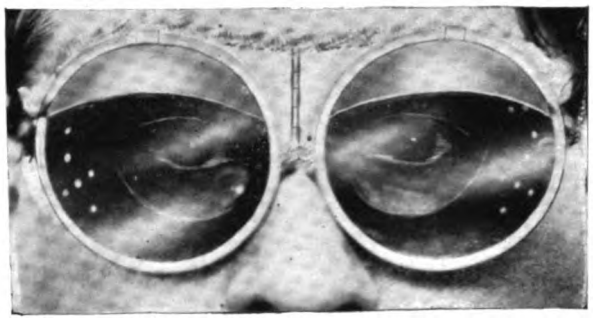
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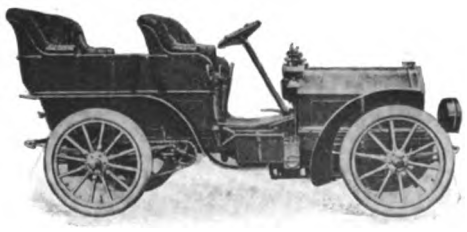
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air-cooled cylinders are illustrated at A, B, and C, Fig. 23. Water cooling is effected by means of a *water jacket, ooo,* Fig. 17, consisting simply of a secondary wall to the cylinder, leaving a space through which water is circulated. A cylinder is thus very efficiently cooled, provided a constant source of fairly cool water is available. In stationary plants, it is usual to bring water direct from water mains and let it run to waste after going through the water jacket. This is impracticable in motor vehicles, and as using the water over and over again otherwise soon would cause it to boil away, a *radiator,* A or B, Fig. 24, must be provided for cooling the water by air. Consequently, a typical water-cooling system on a motor vehicle consists of the cylinder water jackets, a radiator connected to a tank—or combining within itself the function of a tank—a pump, or other means for maintaining the water in circulation, piping, connections, etc., and perhaps a fan for drawing air through the radiator.

Mufflers for gasoline engines are necessary if the noise made by the exhaust gases escaping to the atmosphere, at a pressure of 50 to 60 pounds to the square inch, is to be suppressed. This noise is almost explosive in its violence and without a muffler in very annoying. There are two methods of silencing the exhaust in a gasoline engine. One is to cool it before permitting its escape into the surrounding atmosphere, thus reducing its temperature, and consequently its volume, until it is very little above atmospheric pressure; and the other is to permit its expansion through numerous chambers and intricate passages, so that it is forced to expand by degrees instead of suddenly. A muffler of the first type is illustrated at B, Fig. 25, in which *a* is the terminus of the exhaust pipe from the engine, *b* is the muffler,

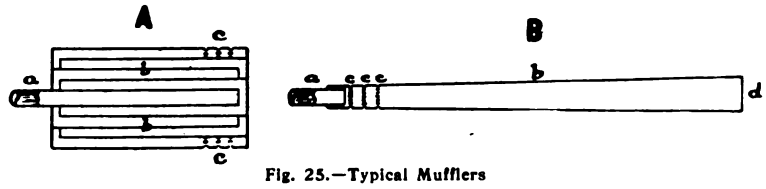


Fig. 25.—Typical Mufflers

consisting of a slightly flaring tube, and *ccc* are series of small holes into which air is drawn when the exhaust gases pass through. The air thus induced mingles with the hot gases, and by the time these reach the mouth *d* of the muffler, cools them to such an extent that they issue therefrom without appreciable sound. A typical muffler of the commoner sort is shown at A, Fig. 25, in which *a* is the pipe from the engine, *bb* are partitions in the muffler, and *cc* are small holes through which the gases finally escape, after having expanded through all the chambers.

Controlling and Governing Devices are such levers, pedals, etc., as make it possible for an operator to produce variations in the speed or power output of a gasoline engine.

Strictly speaking, a *governing device* consists of automatic mechanisms by which an engine is kept running at any rate predetermined by the setting of the *controlling devices,* which alone are subject to direct manual or pedal control. As practically all means of controlling and governing operate upon ignition systems and carbureters, or upon both, they will be treated more fully in the lessons concerning those subjects.

Two-Cycle Gasoline Engines are to some extent used. In these, an explosion occurs every other stroke. A typical two-cycle engine consists of a cylinder, a piston, a connecting rod, a crank, a crank shaft, and a crank casing. With the piston at the commencement of its stroke, and an explosion occurring above it, it is driven down as in the case of a four-cycle engine. As soon as it has gone low enough to uncover a port in the cylinder wall, the exhaust gases are discharged through this into the atmosphere, through a muffler or otherwise. A slight further movement of the piston downward uncovers another port, which communicates with the crank chamber. In the crank chamber, a change of fuel has been previously compressed by the downward movement of the piston, and this charge now rushes through the port last uncovered into the space above the piston. A *deflecting plate* directs it upward, keeping it from passing directly across the cylinder and out at the exhaust port. As the piston returns on its upward stroke, it covers first the inlet port and then the exhaust port, and, continuing, compresses the charge in the upper portion of the cylinder, where it is fired and the same cycle of operation repeated. On each up-stroke of the piston, a fresh charge is aspired into the crank chamber as a third port in the cylinder wall is uncovered. In many two-cycle engines, a *check valve,* opening into the crank case, is made to take the place of this third port.

Multi-Cylinder Gasoline Engines, because of the infrequency of power impulses in single-cylinder gasoline engines, are often employed, and consist simply of a number of cylinders combined in one engine, so timed in their operation that the power impulses come closer together than is possible when only a single cylinder is used. With a four-cylinder, four-cycle engine, it is possible to have an impulse with every upward and downward stroke of the engine. This not only adds considerably to the smoothness of power development, but also reduces vibration by balancing explosions and moving parts.

There are many freakish and uncommon combinations of cylinders in gasoline engines, all the way from one to eight being used, but the most approved constructions are single-cylinder horizontal engines; two-cylinder horizontal engines with the cylinders on opposite sides of the crank shaft; one-cylinder vertical engines; two-cylinder vertical engines; three-cylinder vertical engines; and four-cylinder vertical engines.

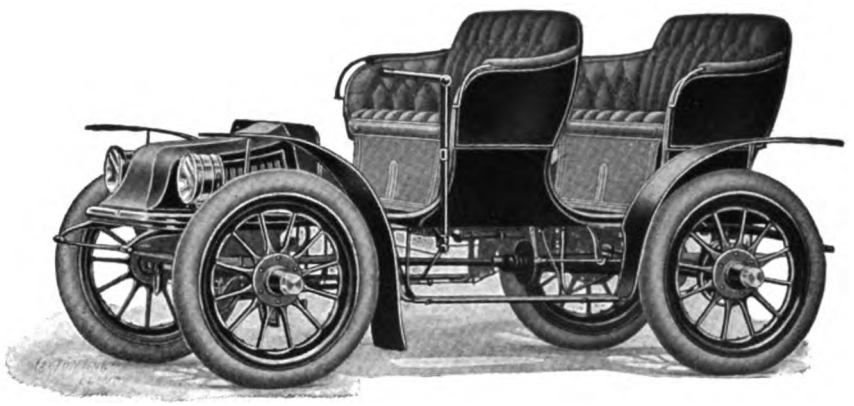
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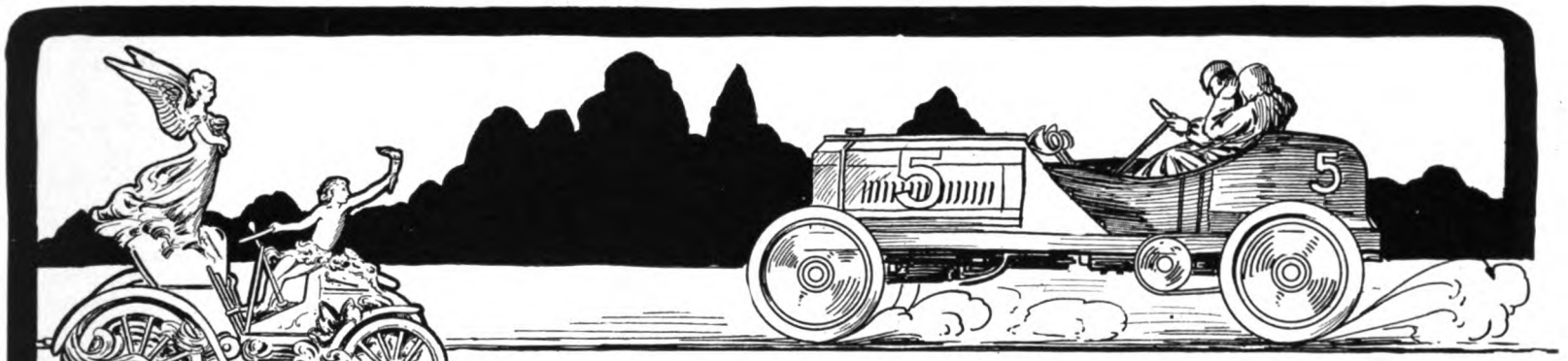
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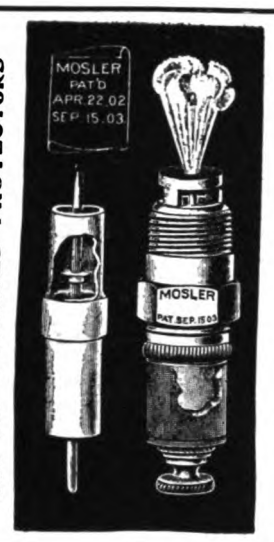
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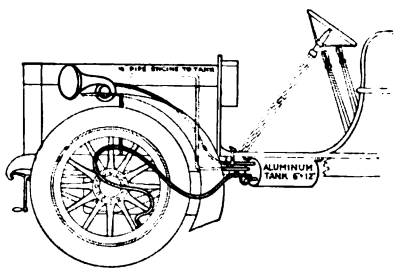
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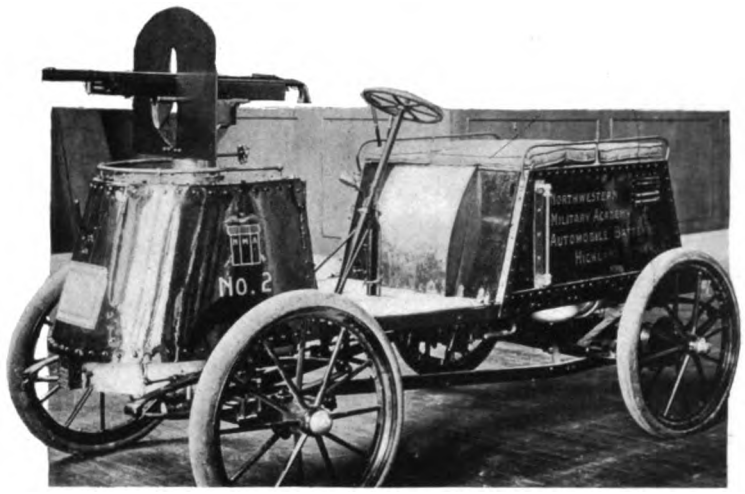
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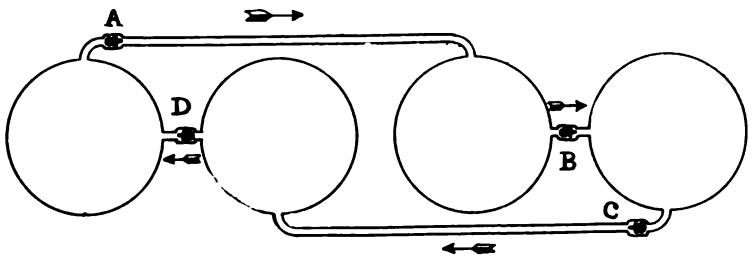
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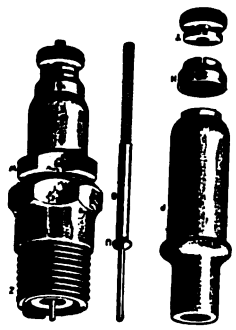
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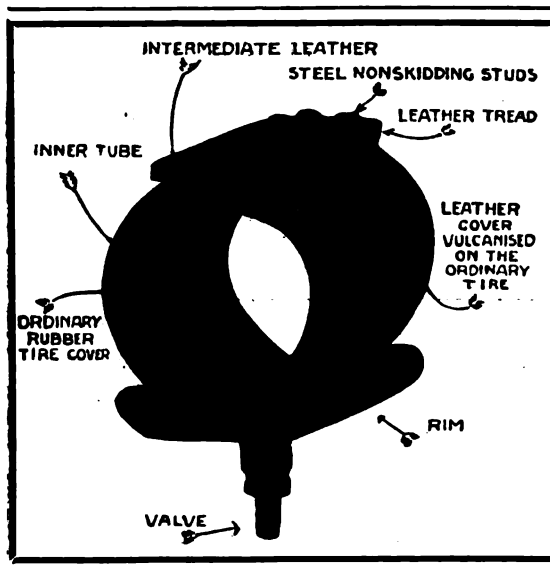
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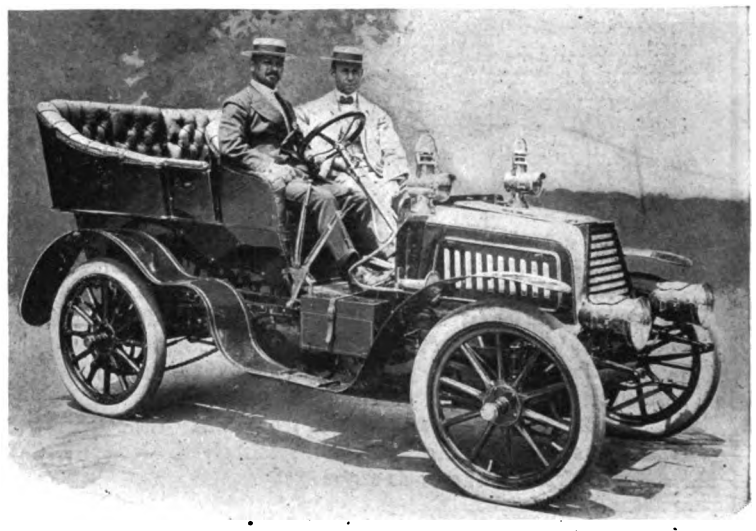
Motoring in Society

(Continued from page 27.)

For much the same reasons, Miss Ethel Rockefeller, daughter of Mr. and Mrs. William Rockefeller, found her name to be a source of such embarrassment that during her recent motor tour through Scotland, England, and Wales, she was compelled to pass as a sister of her companion, Miss North. As soon as ever she arrived in London from the United States, the newspapers commenced publishing accounts of the number of thousands of pounds that poured into the coffers of her father and uncle every hour of the day and night in an uninterrupted flow, and these stories were reprinted with the embellishments suggested to the phantasy of the correspondents in all the provincial papers, especially in those of that particular portion of the United Kingdom through which she intended to tour in her motor car. The consequence was, that at the first stop which she made with Miss North, she found herself mobbed, while the people of the inn where she had taken rooms for the night were not only beside themselves in their demonstrations of awe and respect, but likewise contributed to an increase of the crowd by proclaiming far and wide the extent of the wealth of the quiet-looking young girl whom they were harboring beneath their roof. Finally, Miss Rockefeller came to the conclusion that all the comfort and enjoyment of the trip would be at an end unless she took some means of concealing her identity, and accordingly, from that time forth, she traveled as the sister of her companion, Miss North, and in this way escaped all unwelcome attention. She has now returned to this country.

* * *

Emperor William, who has just joined the Automobile Club of Germany, and whose motor cars now bear the club's emblems, is very fond of scorching, and nothing would have pleased him more than to have taken part in the recent Cup race at Homburg. As it was, he ran over the course on the day before the race, in his blue and yellow Mercedes car, traveling at a high rate of speed, and seemed to take a special delight in rounding the curves and rushing down steep hills at a breakneck pace. He has recently had a fine motor phaeton built, in which he now makes the runs between Berlin and Potsdam, usually with a



R. B. ROOSEVELT JR., AND MR. VALENTINE IN A 24-HP. BERG

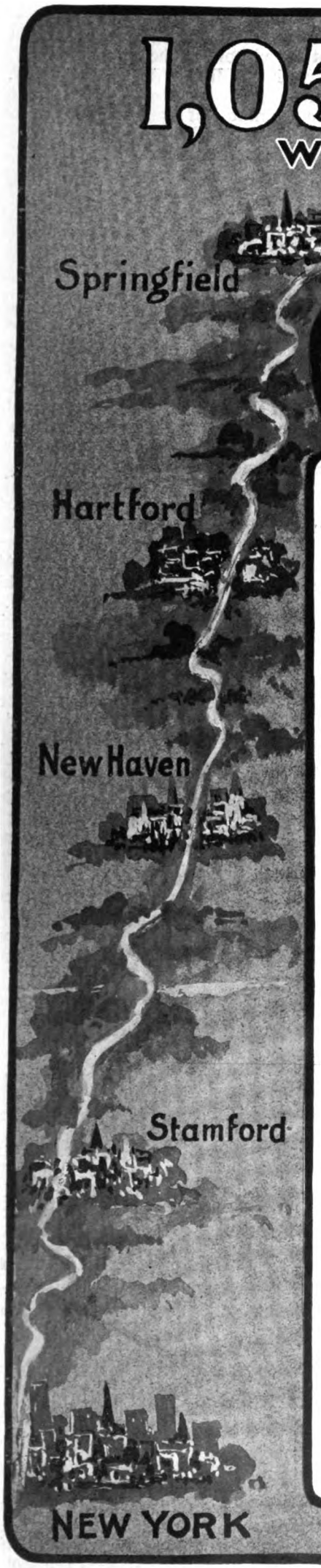
couple of adjutants and a chauffeur, dispensing almost altogether with the railroad. The Empress does not like motoring at all. But Prince Henry is an enthusiastic motorist, and thinks nothing of a trip all the way from Kiel to Darmstadt by motor car to pay a visit to his brother-in-law, the Grand Duke of Hesse. Princess Henry shares her husband's love of the sport and has a car of her own, which she uses for her trips between Kiel and her country seat at Himmelsmarck, a distance of about twenty miles from the city. The Kaiser was so much wrought up by the international race at Homburg that he immediately afterward ordered another 40-horsepower Mercedes car.

* * *

Motor boating is the fashionable fad of the season this year at Newport, Southampton, Bar Harbor, and other fashionable seaside resorts, and quite a number of races and speed contests are being organized in connection therewith, especially at Newport, where Mr. and Mrs. James E. Martin, Colonel John Jacob Astor, Alfred and Reginald Vanderbilt, Harry Payne Whitney, and a number of others have already motor boats in constant use. The greatest enthusiasts in the matter of motor boats, however, are Mr. and Mrs. Willie K. Vanderbilt, Jr., who have already three of these boats, including their racer, the *Hard-Boiled Egg*, and have now ordered another one. Young Mrs. Vanderbilt shares her husband's tastes in this respect, and is usually to be found at the wheel, clad in a costume that partakes of the bathing suit order. For especially when racing, the speed covers everybody on board with spray, while the lightness of the boat, in conjunction with the heaviness of the machinery, gives one the impression that any moment the bottom of the small craft may drop out and a swim for life become the order of the day. One thing at any rate is certain, namely, that there is no sport in the world that is so exciting as motor boat racing, and certainly the spray and foam of the sea with which one gets covered are preferable and less injurious to the health than the fearful dust of the road which gets into one's eyes, one's mouth, and breathing apparatus generally, besides covering one from head to foot, in traveling by road.

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1,053 2/3 Miles
WITHOUT A STOP



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Mr. F. A. La Roche and Mr. A. J. Picard drove a 15-20 H.P. Darracq continuously over the New York-Boston route four times, starting Sunday, 6 p.m., June 26 and finishing at 1:15 p.m., June 29, a total distance of 1,053 2/3 miles, and THE ENGINE NEVER STOPPED. The Darracq surpassed all former records by twenty-four miles. The Darracq is the first car to successfully accomplish this test of quality, reliability and power, and the first car to run continuously 1,000 miles and over in America, although the feat has been several times attempted by others.

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MOTOR

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John Wanamaker.
Pittsburg, Pa.—The Standard Automobile Co., East Liberty.
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St. Louis, Mo.—Continental Tire Agency, F. O. Sawyer, Mgr., 2212 Olive St.
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Made by GRAY & DAVIS
AMESBURY·MASS

Up and Down and Around Washington; the Rugged

(Continued from Page 25.)

around curves in a manner that caused wonderment in the rearguard and brought the visitors to the destination an hour or so ahead of the schedule. Judge A. S. Batchellor, the energetic director of the occasion, accomplished some quick work in marshaling the committee of welcome, but the townspeople responded with alacrity, and the prolonged reception made perhaps the most pleasing feature of the eventful day.

At Sugar Hill enjoyable calls were made at the Franconia Inn and the Sunset Hill House; next came the Profile House and a good look at the "Old Man of the Mountain"; then followed the grand view from the Forest Hills Hotel; on to Bethlehem and its Sinclair House, with another stop at the Maplewood; and finally the last link of the trip back to Bretton Woods. All that started survived the day, and its close found Governor Bachelder a strong convert to the general utility of the motor-driven vehicle.

With an eighty-five-mile run that encircled the Presidential Range the two days' endurance tour concluded late Friday afternoon and brought to a successful close the White Mountains automobile week. Of the seventeen cars that started, all, with the exception of one, completed the trying, though picturesque journey. The mileage to the noon luncheon stop, Wentworth Hall, Jackson, was exactly forty-four miles, and the concluding part of the trip included the passage of the Crawford Notch, a hard climb for motor cars, and one which was too much for many machines last year.

Of the seventeen participants sixteen received gold medals for satisfactory performances, this being the list: H. W. Alden (Columbia), Frank Nutt (Haynes), George H. Lowe (White), Webb Jay (White), James L. Breese (Mercedes), H. W. Whipple (Mercedes), J. S. Prouty (Winton), Percy Pierce (Pierce), Arthur Gardiner (Rambler), F. E. Stanley (Stanley), C. C. Hildebrandt (Stevens-Duryea), Alexander Winton (Winton), L. R. Spear (Winton), Mrs. L. R. Spear (Winton), B. A. Lamont (Cadillac), Harry Fosdick (Winton).

Chairman Pardington, of the A. A. A. Racing Board, did the referee rôle during the climbing, with President H. W. Whipple, S. A. Miles, of the N. A. A. M., and S. M. Butler, of the Automobile Club of America, as associates; "Around-the-World" Glidden lent aid at the summit, and Touring Chairman Post served below; the Chronograph Club, that excellent Bostonian aggregation of timers, saw that the clocking was correct, and its representatives were G. H. Lowe, J. C. Kerrison, E. O. Winsor, and F. A. Ross. Angus Sinclair, Alfred Reeves, Harry Fosdick, and R. C. Emery were others who figured officially. Of course, "Senator" Morgan was in demand at all times, and John B. Parkinson, all the way from the Ormond-Daytona course, relieved the overworked manager whenever opportunity offered.

To the Crater of Vesuvius

(Continued from Page 31.)

(that's the way you feel toward a motor car when it doesn't go back on you) plodded gamely upward. I would like to tell you something about the view you get when half way up to the Observatory—the dazzling blue stretch of the bay, with Capri's rocks faintly visible on the horizon, and the city of Naples bordering the shore with its sea of red roof-tops gleaming like a field of poppies in the sunshine, and then, ahead of us, the delicate outlines of that grim volcano—but your correspondent has a look of "cut that short" in his eye.

When we had passed the Observatory, the road, as I said, grew worse, and we were practically floundering upward in black sand. But we floundered in a comparatively straight line until we could flounder no farther. And then, even the chauffeur breathed a sigh of relief. A balloon might have gone farther, but no vehicle on wheels.

I went over the machinery carefully. The water was nearly all gone, for the strain had been terrific. Beyond that, however, we might just have finished a spin down the Champs Elysée for all the wear and tear or signs of exertion that were visible.

And then we turned around and coasted slowly down hill until we reached the heart-rending streets of Naples again.

If you ever come to Naples, don't climb Mt. Vesuvius in a motor car. It might be worth doing if you wanted to test the staying powers of your machine, but the trip in itself isn't worth while. Besides, if there were a sudden eruption, like that which destroyed Pompeii and Herculaneum, it might interfere with the carbureter.

Yours truly, B. L.

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The tire is adapted to all makes of Standard Clincher rims, necessitating no changing of the rims; does away with the cumbersome, heavy, standard, solid-tire channel which, with its great weight, acts as a sledge-hammer to destroy the tire as well as causing extra hard jarring to the machine; its scientific design allows the greatest resiliency; being solid, it is immune from the faults of the pneumatic and is compounded and cured with a view of adapting it to any load to be carried. In ordering tires always specify the load to be carried on both rear and front axles and secure the benefit of watchful care in selecting tires which are adapted to the particular load to be carried. All tires are tested for their carrying capacity before being applied. *Write for Prices.*

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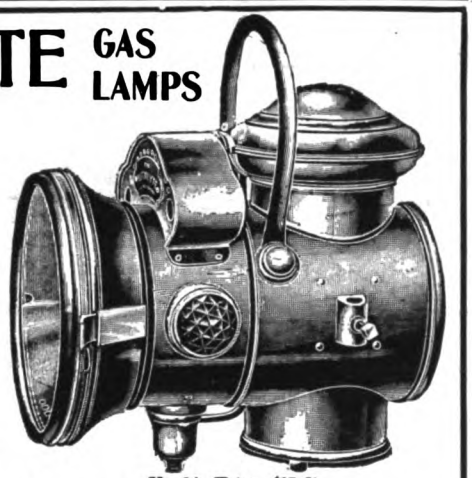
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A Resume of Motoring Afloat

(Continued from Page 10.)

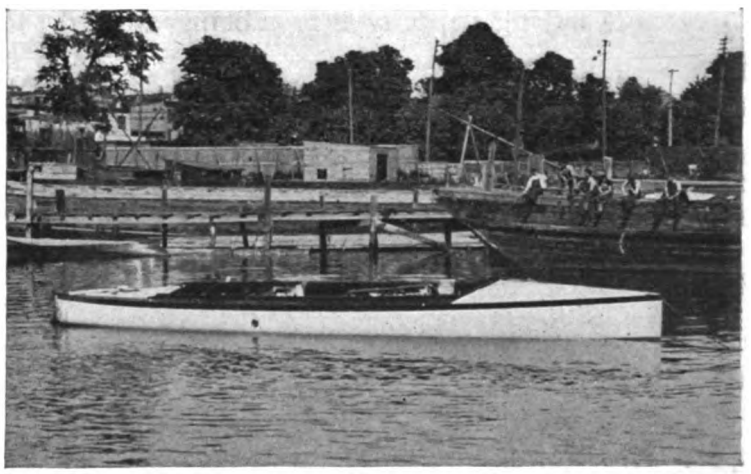
does not seem able to reproduce her equal. The Standard has won about every race in which she has started, including a win of the American Power Boat Association's $1,000 Gold Challenge cup, emblematic of the championship. In the series of three championship races on the Hudson she covered 96 knots at an average speed of better than 20 knots per hour, and in one race she made a record of 1h. 33m. 30s. for 32 knots, which is equivalent to 23.61 statute miles per hour.

The Water Lily, Japansky, and Alert, representing the Gas Engine & Power Company of Morris Heights, have probably done the next best work, averaging around 17 or 18 knots per hour.

The Lozier boat, Shooting Star, has also performed creditably, though she has been rather unfortunate in the matter of accidents.

The Fiats, Nos. I, II, and III, have also done good work for boats of their size, but judging by their performances in public, 16 or 17 knots is very nearly their limit, with their present freak type of hulls.

Concerning the Smith & Mabley boats, the Vingt-et-Un II won the unsatisfactory match with Fiat III at Larchmont recently, while the eight-cylindered 150-horsepower Challenger, which is now abroad racing for the Harmsworth Cup, nearly turned turtle while racing in a fairly lively sea off Greenwich. The chief trouble with the Challenger, it is asserted, is that her hull is overwhelmed by its own power, and when her mighty motor begins to hum she performs very much the way a humming bird would if equipped with the wings of an eagle.



CHALLENGER, THE SMITH & MABLEY FOREIGN INVADER

The motor boat committee of the Automobile Club of America, which privately put the boat through her paces, July 6, made a report which gave an extraordinary average speed of 26.5 miles an hour. If the deductions of Mr. Carpenter and his associates are reproduced on the other side, the Challenger ought to figure in the contention for the Harmsworth cup.

The Jacobs designed boats from City Island, which include Mr. Vanderbilt's Hard Boiled Egg, Mr. Martin's Catch-Me, and the Miss Swift, while all fast boats in their way, are not record-breakers by any means; while among the smaller boats A. Massanet's Panhard and C. A. Godshalk's tiny Nada from Philadelphia are by long odds the best of the lot.

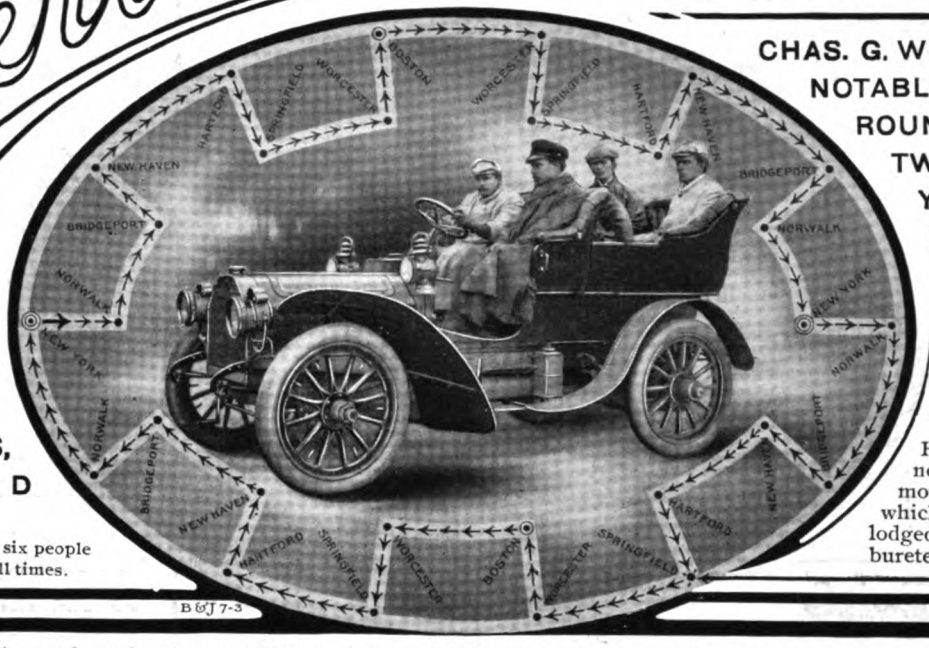
In the recent Boston races held by the Eastern Yacht Club at Marblehead, a new boat called the Mercedes, owned by the well-known land motorist, Herbert L. Bowden, with a hull designed by Starling Burgess, was credited with covering a 1¼ knot course at the rate of 24 7-10 knots per hour. Unfortunately, this record was made in a trial, for in the race the Mercedes cracked one of her cylinders and had to withdraw. This boat is only 32 feet on the water line. Under German rule her motor rates at 60 horsepower, but under American Power Boat Association rule she is credited with only 47 horsepower. This boat has hollow lines forward, and there is no wild throwing of the water aside or carrying it astern. She turns quickly and keeps on a fairly level keel. When her motor is repaired the owner expects to enter her in the New York Yacht Club runs at Glen Cove and Newport this month.

However, after all is said and done, the automobilists have brought lots of energy and enthusiasm into the sport, and the persistent way in which they have knocked out old Father Time on the dusty highways may yet be duplicated in "Pa" Neptune's domain.

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From four to six people in the car at all times.

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650 MILES without stopping the Engine.

Here a stop was necessary to remove some waste which had become lodged in the carbureter.

This trip, made under the surveillance of impartial observers, was a convincing demonstration of the reliability of the Peerless Car. Performances of this kind, together with the repeated successes of the Peerless on the race track and in the recent "Climb to the Clouds," have stamped it beyond question as America's foremost car and comparable with the finest imported machines of similar power.

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Their first cost is somewhat higher than that of other makes, but less in the long run. Punctures, tube-cracks and rim-cuts are unknown to users of TENNANT Tires, while their scientific construction and superior resiliency insure an increased measure of speed, safety and comfort.

Cleveland, Ohio, June 28, 1904.

TENNANT AUTO TIRE CO., Springfield, Ohio.

GENTLEMEN:—Replying to your inquiry as to the cost of running a car equipped with the TENNANT tires as compared with the cost of using other tires, I herewith submit you a statement taken from my books, and which is correct to a cent.

Before using your tires my expenses were:—
Tires and repairs, $18.00 per month; repairs other than tires, $12.42½ per month; supplies, $4.12½ per month.
Since my car has been equipped with the TENNANT tires, my expenses in the last four (4) months were:—
Tire repairs, NOTHING; repairs other than tires, $4.00 per month; supplies, $4.12½ per month.

You will see that I have avoided not only the expense and annoyance of repairing tires, to say nothing of the absolute safety with which I can now travel, but I have reduced the extra expense on my car from $12.42½ per month to $4.00 per month. This item I attribute to the easy riding qualities of your tires.

The car I use makes as many as five (5) runs a night to fires, and the emergency is such that we have not time to pick our road, or to dodge any obstacles which might hurt the tire.

I cannot too heartily endorse the TENNANT PNEUMATIC PUNCTURE-PROOF TIRE.

Believe me to be,
Very respectfully yours,

P. J. ANTHONY.

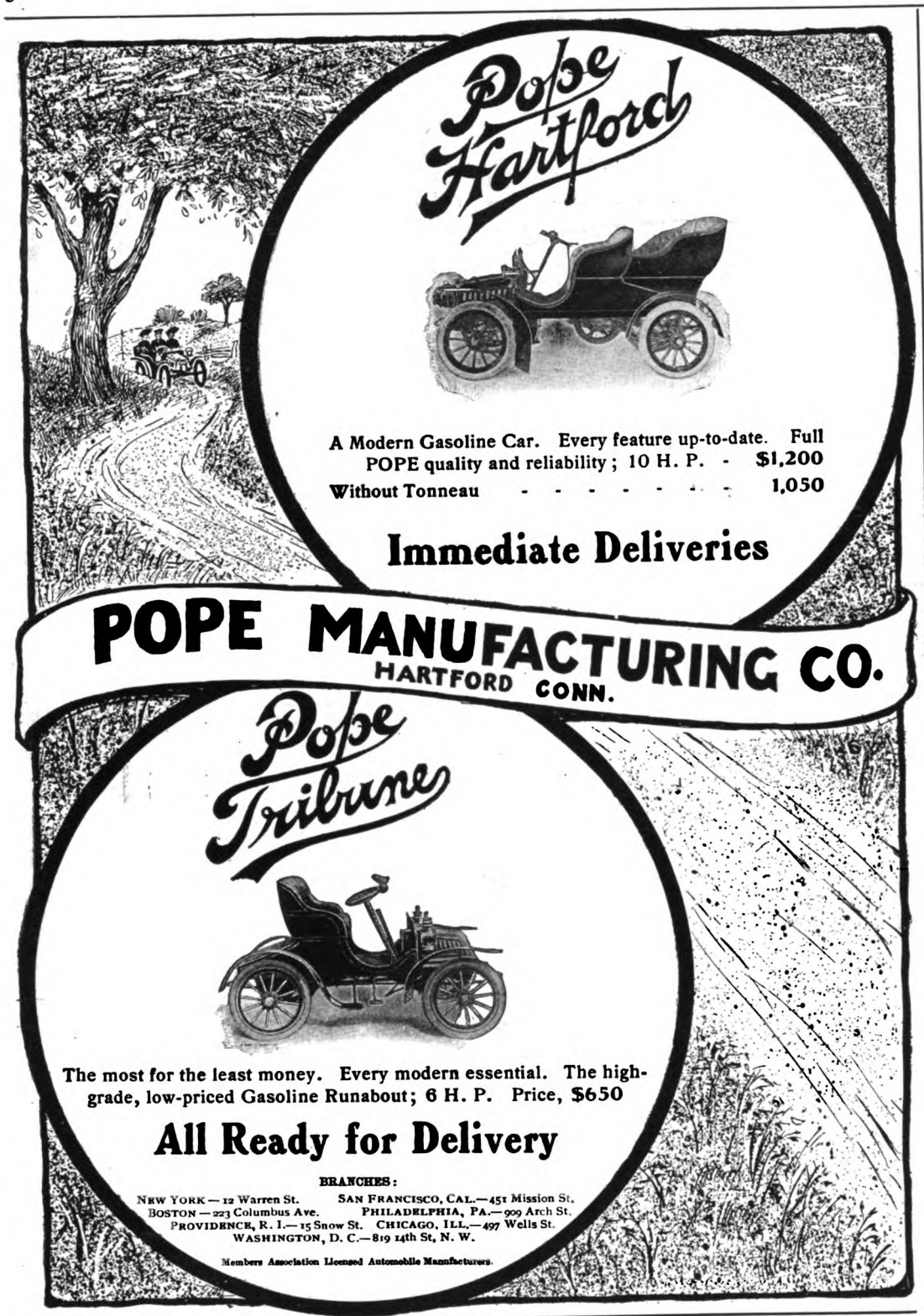
This is certainly a remarkable record. Let us send you our printed matter, and you will readily understand why the name TENNANT stands for all that is desirable in tires.

NEW YORK OFFICE: 1900 BROADWAY

TENNANT AUTO TIRE CO.
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From Glasgow to London

(Continued from page 17.)

remarkable, for Constantine had not been Emperor more than six years before he summoned the Bishop of York to the Council of Arley in Gaul, A. D. 312, and the history of its noble minister has continued with only the intermission of fire and sword from that day to this, ever faithful to its mission.

The road southward leads through Selby to Doncaster, which enjoys the reputation one day in the year of being the cynosure of all eyes in the north, as the miners say on "ter coop" day; in other words, the day on which the Doncaster Cup, the St. Leger, is raced for. Then its star sinks again for another year; but it is a gay day. We will pass on, however, to Bawtrey, where William Bradford, the second governor of the Pilgrim Fathers' Colony, was born, and to Scrooby, where, in the old manor house of Cardinal Wolseley, William Brewster, a ruling elder of the Pilgrim Fathers, held the office of posting master, and where John Robinson, the Moses of the Separatists, first gathered his congregation, and then we will on to Retford, a little south of which the road turns due east to Lincoln.

There you will need no sign to announce the fact that you are nearing Lincoln, for out of the surrounding fens the pedestal on which the sky-piercing towers of its wondrously graceful cathedral stands rises like the rock of Gibraltar from the Spanish plain. Make your way to the top of that hill before you select your hostelry, and there is a good one just beyond the cathedral precincts, or you will rue it; for up to that marvelous museum of ecclesiastical architecture you will be drawn, time and again, and you will not want to drag up that hill every time, since it is a hill to strain the back sinews of the legs of an elephant. There is abundance in the low town to repay one visit or more, but do not mix the two; leave the low town until you have done with the high.

Nearly all the roads of Lincolnshire are flat and good, and from Lincoln take the road southeast to Sleaford and eastward to Boston, of whose church, known over all the seas of the world as Boston "Stump," John Cotton was vicar before he emigrated to New England, and from whence the Pilgrim Fathers made their escape to Holland, where they resided until they left in the *Speedwell* to join the *Mayflower* at Plymouth, and crossed the Atlantic to found newer Plymouth, a lusty child of so small a town as that they left behind. One excursion from Boston a motorist will be able to make easily, and that is to Spilsby, a very few miles to the north of it, and thence to Somersby, where Tennyson was born and lived his earliest and most impressionable years. His father was rector there, and the scenery around from "the moated grange" to "the brook" inspired much of his verse. It is a distinct advantage in interpreting Tennyson's natural history and scenic allusions to have spent a day amid the scenes he has made the property of the world.

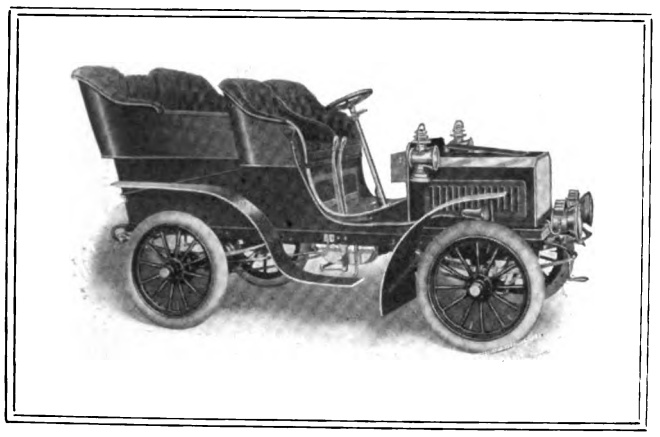
From Boston we will skirt the Wash to King's Lynn, an antique old port with a decidedly Flemish atmosphere, though we must not tarry there. We will pass on along the coast a few miles, through a country which, from its heather and furze, we might think was a bit of Scotland, to the farm home of King Edward VII, Sandringham, to which he took his youthful bride, and where they both live their happiest days of every year. It is distinctly worth while to give more than a passing glance at the rural simplicity, yet thoroughly practical agricultural conditions, of Sandringham; it is the key to much that is pleasant in the country life which is so marked a feature of England.

Hunstanton, a modern seaside resort tacked on to a very ancient estate, is just beyond. Its cliffs of alternating red and white chalk and yellow sandstone are a great curiosity. From there the good coast road goes through a right pleasant land with something of interest ever in sight, by Burnham, and Wells, a red-tiled

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The many advantages possessed by an air-cooled motor over one cooled by water have long been recognized. It saves complications, saves weight, and this means power, simplifies the construction and makes the ideal engine for the automobile.

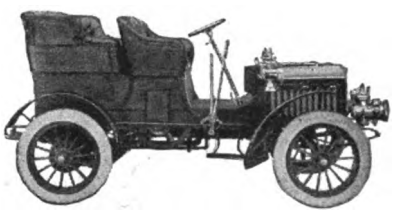
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The Yale provides what nine out of ten automobile purchasers want—a roomy, comfortable-riding, beautiful-appearing, family touring car with power sufficient to overcome all road difficulties and to develop a rate of speed that will satisfy any desire to "ride fast."

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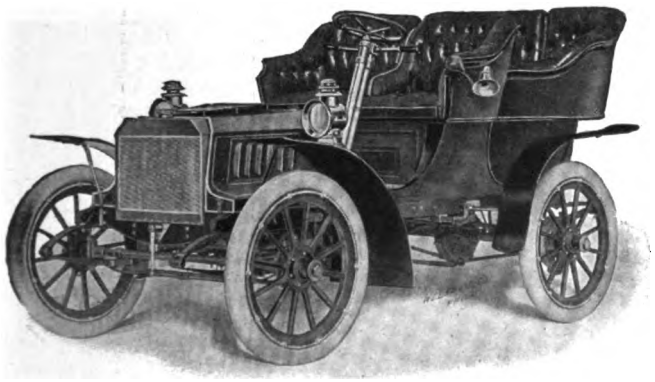
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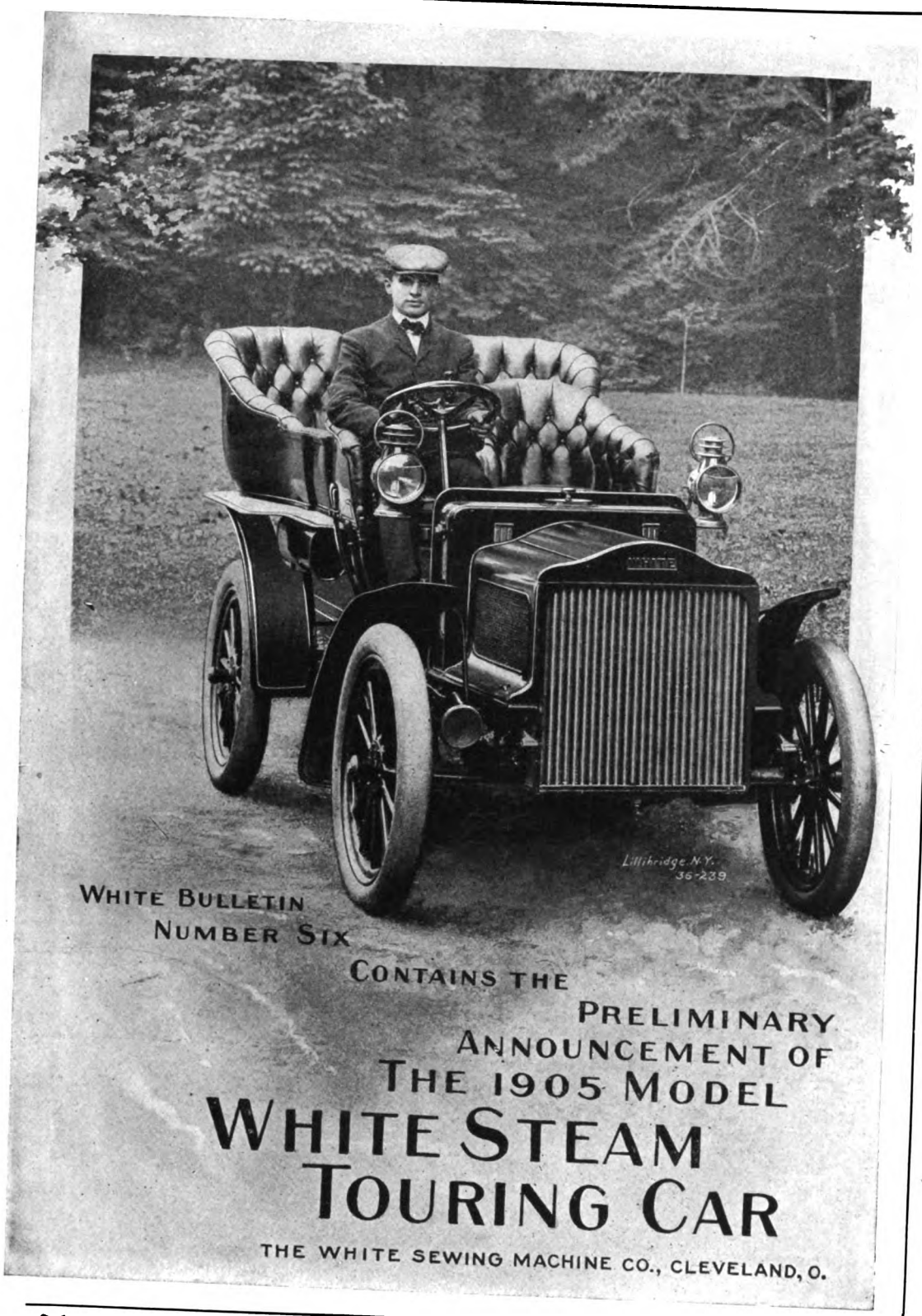
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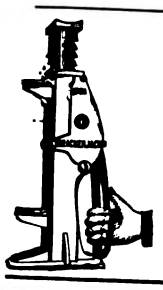
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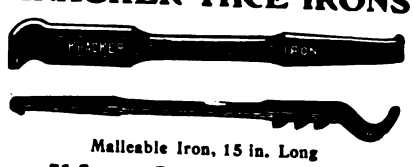
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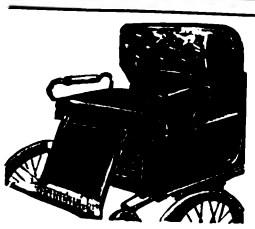
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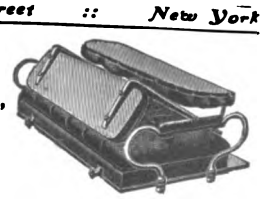
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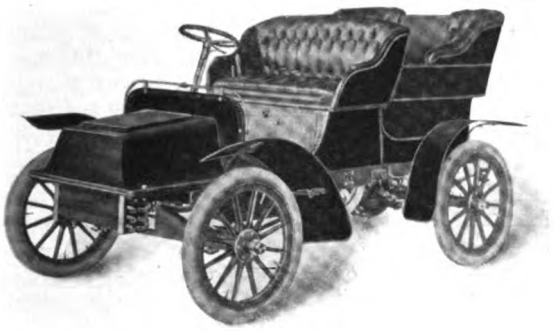
old mart of malt left high and dry by the diversion of trade from the sea to the rail; and thence by Blakesley and over a highly cultivated rolling country known as "poppy land" to Cromer, worthy a visit for its own sake as one of the sweetest and most picturesque, old-time seaside resorts on this old-fashioned coast. It is a corner of England worth studying is this out-of-the-way Norfolk, and I hesitate right now whether to take you direct to Yarmouth along the coast or bend inland to Norwich. Norwich wins, because I want you to see the immense herds of cattle on the marshes from whence come the primest of the roast beef of old England, to say nothing of your taking in Norwich Castle and the cathedral, with its graceful spire and its perfect cloisters, and the bells of St. Peter's Mancroft, in its market place, alone worth a long detour to hear. I want you also to catch a passing glimpse of the widely known fresh water lakes, known as "The Norfolk Broads," and if possible, to see the uses to which the modest Corinthian yachtsman puts his moderate facilities to. It would be worth while for half a dozen States, I wot of, to send a commission to see what great use can be made of such a comparatively little water. So we will pass from Norwich through Acle to Yarmouth.

Yarmouth is more than the home of the bloater: it is the home of *Little Emily* and of *Ham Peggoty*, and of *Mrs. Gummidge*, and of *Barkis*, and of the wreck of the *Sheerforth;* and every scene in that most fascinating of Dickens' works, "David Copperfield," can be verified to-day. How often have I seen, years after the author's death, *Barkis'* carrier's cart come lumbering over the Yare Bridge, and once I saw a storm similar to that described in the wreck scene, and when it was over you could not find the north battery; every vestige of it and its guns was buried beneath the drifting sand. A great book is "David Copperfield," and a mighty interesting place is Yarmouth, and its thousands of fishermen, and its bold sailors, its herring market, and its rows, numbered like American streets.

A dozen miles to the south of it we come to Lowestoft, near where Edward Fitzgerald, he of the "Rubaiyat" celebrity, lived, and Borrow, who wrote "The Spanish Gypsey." But it must not detain us, for we have to make Saxmundham, and Woodbridge, through many a pleasant mile of yellow-clayed Suffolk, before we get to Ipswich on the Orwell, where surely we will put up at the "White Horse" and take out our "Pickwick" that we may the more enjoy it. It is the birthplace of Cardinal Wolseley, and if we had time we would certainly take a trip down its delightful river, the Orwell, to Dovercourt, one of the show rivers of Europe. We have other fish to fry, for we must spend a few hours in Colchester, which is literally teeming with undoubted Roman remains in castle, abbey and priory; and all its neighborhood is redolent with ancient story and traditions, back to the time when Queen Boadicea all but annihilated the Roman invaders and turned the tide of their influx, perhaps for good, and all time. On such threads do nations' fates sometimes hang.

From Colchester our road will take us through Witham, Chelmsford and Romford, and so through Stratford, Bow, the Mile End and Whitechapel Roads direct into the heart of the great metropolis, to which all our steps have been leading us, and none of them has failed to prepare us better to understand the Old Country than any other possible method of reaching its capital could have done. My only regret is that the exigencies of space have compelled me to but touch the fringe of the curtain of the charms of many a mile on the way. But he is a poor artist who does not leave room for the imagination of those who stand before his picture, and I have fulfilled my mission if I have but stirred the curiosity of motorists, and raised in them some desire to see the highways and byways, as well as the picture galleries of great cities, made cosmopolitan by their very conditions of existence. There is room for both, but let me approach the city through the broad, open and transparent country.

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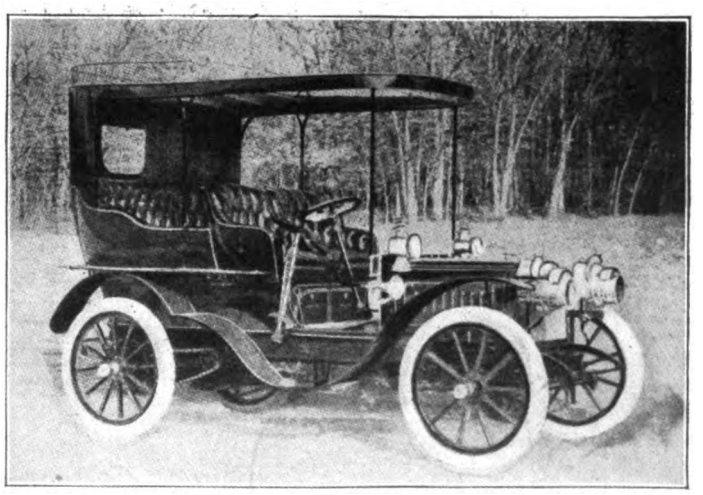
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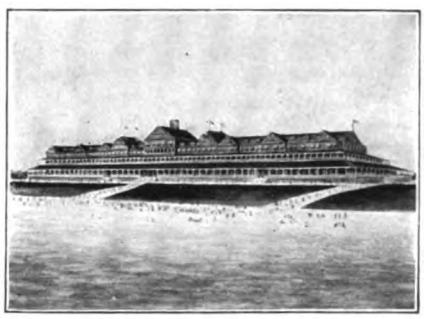
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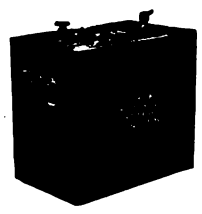


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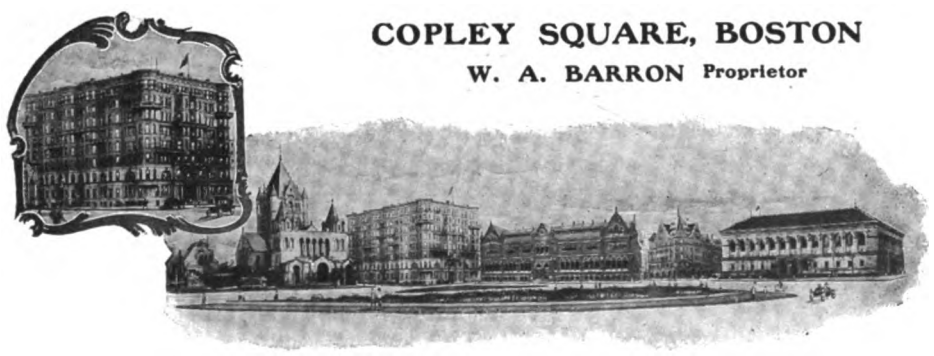
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TOURISTS *en route to and from mountains and shore will find the unequaled in Boston.* 34 **WESTMINSTER**

The Battle of the Master Forces

(Continued from page 31.)

On the lake, Compton found that there was one merchandise steamer which had commenced running since the opening of the Uganda Railroad, but its route was to the eastward. An instance of the changed conditions which railroad and motor car facilities bring about may be here quoted because of its remarkable results. When Stanley made his celebrated journey down from Mombesa, on the seacoast, to this lake, he did it in the unprecedented time of seven months. If Compton had turned to the northeast corner of the lake, and taken the Uganda Railroad, just built by the British Government and the British East Africa Company, he could have been in Mombesa and the Coast in two days and a half, a marvelous revolution which the motor, the new Master Force, is carrying still farther.

Compton skirted on his motor paddle wheeler the northern and western shores of the lake, until he came to the Kilangule River, following Speke's route, for the same reason Speke had, so that he might avoid the crossing of the Mountains of the Moon, which form a complete half circle around the head of Lake Tanganika. When this river was no longer navigable, the paddle wheels could be taken off, the land wheels substituted, the pontoons deflated, and Speke's path followed to the head of Lake Tanganika.

Tanganika is a long, narrow lake, four hundred miles long, in fact, dividing German East Africa from the Congo Free State. It will, in time, be an important link in the great transcontinental system until it drains itself dry as it surely will when it breaks down the slight barrier on its western shore. Then its waters will all flow down into the Livingstone River, and so to the Congo, and there will be no more lake. At Magala, at its northern extremity, the automobile paddles were again fitted. Only two stops were made, one at Ujiji, Stanley's headquarters, on the eastern shore, and another on the western shore to visit the sacred "high places" above the Rufurus River, and in two days, Zombe, its southern extremity, was reached. From this point runs the celebrated "Stevenson's Road" for two hundred miles, to the northern end of Lake Nyassa, an excellent, and an easy, day's run.

From the northern end of Lake Nyassa a regular service is maintained by a steamer across to Mponda at the head of the navigation of the Shiré, a tributary of the Zambesi, but, even if it had been available, which it was not, for its boats only make weekly journeys, and had sailed the day before, the terms of Compton's contest made it necessary that he should use his motor car. At the foot of the lake is Fort Johnson, and the Union Jack flying above it. It is the headquarters of the British administration, and Compton found it garrisoned by a small company of beturbaned Sikhs, from the East Indies, ferocious looking enough to awe all those who were not impressed by the big guns of the fort. Here he found the third, and last, supply of gasoline he would require, until he reached the railroad again. It had come round from Port Said, in Egypt, through the Red Sea, and up the Zambesi and Shiré rivers, the regular trade route into the northern interior.

From thence he dropped down by the Shiré River to the Portuguese settlement at Zena and entered upon the last land stages of his eventful road journey, which would be from Zena to Salisbury, and from Salisbury to Bulawayo, the outpost of civilization, and the railroad, on whose granite hills the bones of Cecil Rhodes lie entombed, overlooking the grand Matabele country for which he lived, and struggled and died, and which he chose for his burial place.

At Zena, Compton heard some disquieting news. The natives who had come down the Zambesi from out of the Makololo country, said that when making the portage of the Nakabele Rapids, above the Karila Gorge, and camped out, they had seen a strange bird flying in the heavens, higher than any bird they had

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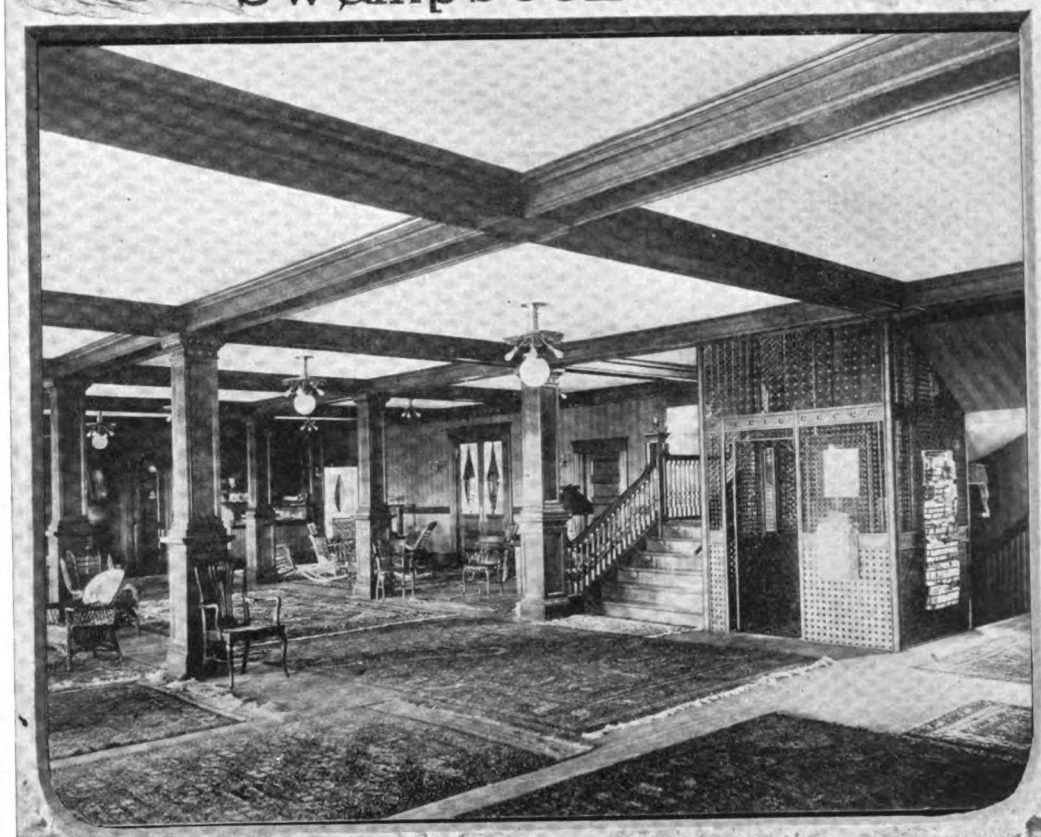
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Complete road map of the run on page 50 of MOTOR for June

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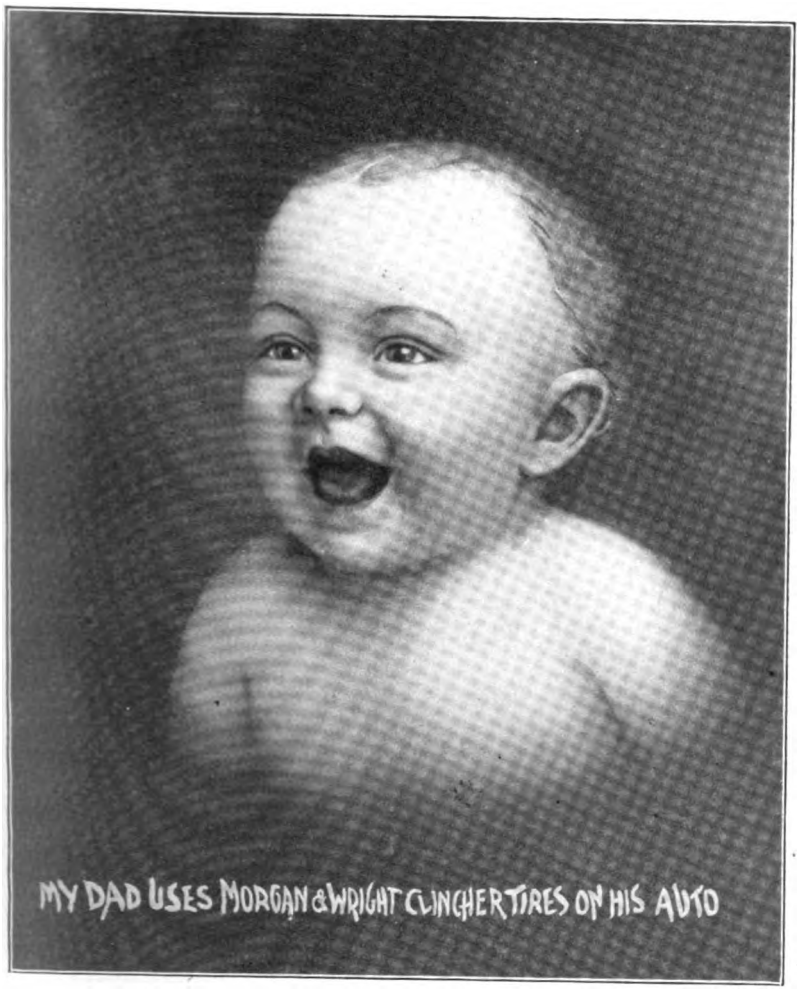
ever seen before. It had no wings, but flew with its feet. They had watched it until it passed out of sight. It was Lancaster, without doubt! and ahead of him! He had heard this gossiping in the old stone gateway of the Portuguese fort, and it spurred him to instant action, for he was yet more than 500 miles from Bulawayo, and Bulawayo was 1,360 miles from the Cape. That part of the journey did not worry him a moment; he had provided for that. Before he left England, he had secured from the officials of the railroad an authority which would open the direct line to his use and he had had a set of wheels made to the gauge of the line, and of such a pattern as would enable him to run his motor car straight down from Bulawayo to the Cape on the railroad metals, with only such delays as the necessities of traffic made absolutely necessary. The line was to be cleared for him up to the limit of possibilities, and, from experiments he had made, he was confident that he could make the run from Bulawayo to what he hoped would be victory in a day. But where was that bird without wings?

CHAPTER VIII.

The rain, which was the last sound that Lavinia heard, before unconsciousness, had, unknown to her, saved their lives. It drove down the heat of the atmosphere, earthward, and presently dulled the fires on the plains. The pressure from below being removed, the balloon sank again slowly, to its normal level. With the return of normal conditions Lavinia slowly returned to semi-consciousness. Her first impulse was to reach for oxygen. It was a long and painful effort. Oftentimes she relapsed, but each time came to with a lesser interval, and at length she was able to administer it, first to Ben, next to her brother, and lastly to herself. It was momentarily effective, and with restored sense came a quick comprehension of the conditions. They were still in the west wind evidently, but the steering having ceased to be operated, the southing had been lost, and they had drifted out over the sea. There was land, however, ahead of them, low down on the offing, but they were sailing for it straight enough. Ben was scarcely more than conscious; the reaction and exertion had left Lavinia exhausted, and Lancaster found himself far from being in the condition a man with two other lives on his hands should be, on such a journey as they were embarked upon. He had got all the geographical facts so clearly in his head, however, from his previous thorough study of them, that he was sure the land in front of them was the Island of Madagascar. They could not miss it, for it extended as far as the eye could see in a northerly direction, extended in fact a thousand miles straight across his path. He feared the night, and determined, therefore, to drop down, and make a landing. He was an expert in his craft. When he had got far enough inland he turned the balloon completely around, circled it, in fact, three or four times, coming nearer and nearer the earth on each circle; picked out a perfectly clear surface, and came to rest, as he thought, as gently as a bird alights in a pasture. But the balloon made yet one more jerk, when it had been relieved of the weight of the car, on that touching the ground, and in the jerk had got the lower car with the machinery in it entangled in a palm tree top. Neither of the passengers were harmed; but some delicate machinery had evidently been, for two or three pieces rattled down on to the floor.

Their descent had been watched, and followed, by several of the inhabitants of a nearby little town, Kilombo, as it afterward transpired, running from their little, high-pitched, roofed bamboo houses. Their ready help soon secure everything, and four of them putting Lavinia and Ben into palanquins which they carried on their shoulders, they took them to their homes. The landing had been made on the delta of the Manyoka River, on the West Coast; and it soon became known to the French military authorities, under whose protection Madagascar now is, who promised, and

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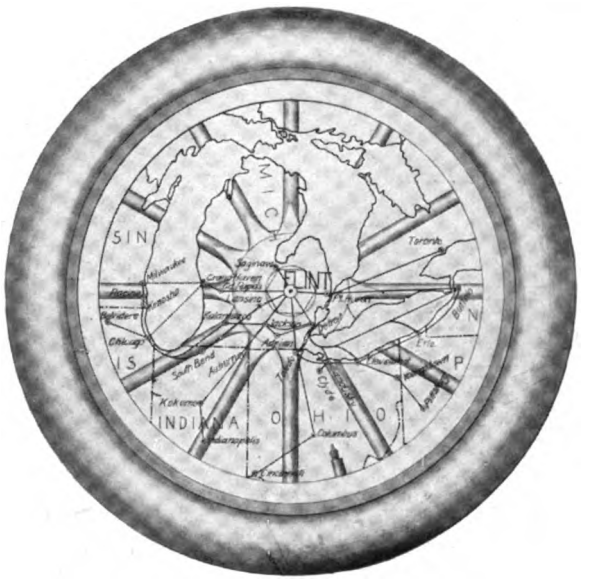
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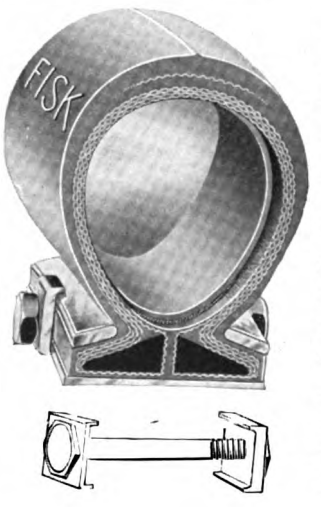
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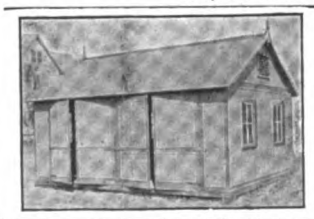
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rendered, the most cordial assistance, as indeed did everybody.

Examination showed that, in the main, everything on the balloon was intact. The most serious damage was a bent piston rod. Lancaster was an excellent mechanic, and the natives are skillful workers in metal, but their methods are almost those of primitive man, and it might be necessary for Lancaster to go up the coast as far as Majomba, the principal port, to effect its repair.

In the end that was what he had to do, and the going and the returning and the performance of the work occupied him many precious days.

Fortunately, by the time he returned, Ben was entirely recovered, and by the friendly aid of the local authorities, and the willing natives, everything was ready for the start again.

There would be no trouble about wind, for they were in the direct course of the southwest trades. By night after their start they would strike over the coast of Africa, in the neighborhood of Delagoa Bay, and the remaining thousand miles would, they doubted not, be an uninterrupted sail.

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With all their delays they must be days ahead of that tortoise of a motor car!

(TO BE CONTINUED.)

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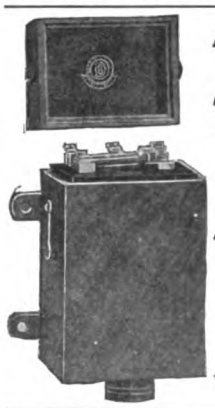
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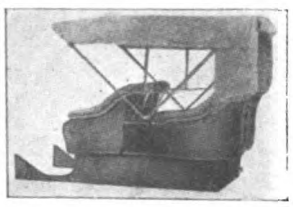


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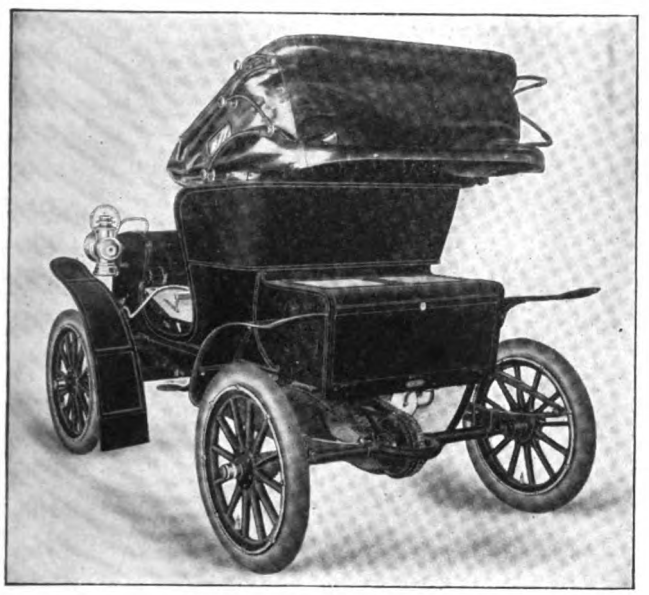
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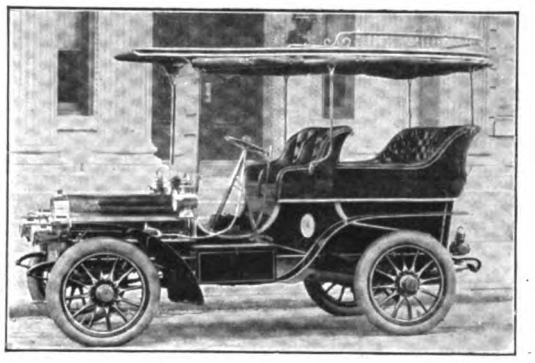


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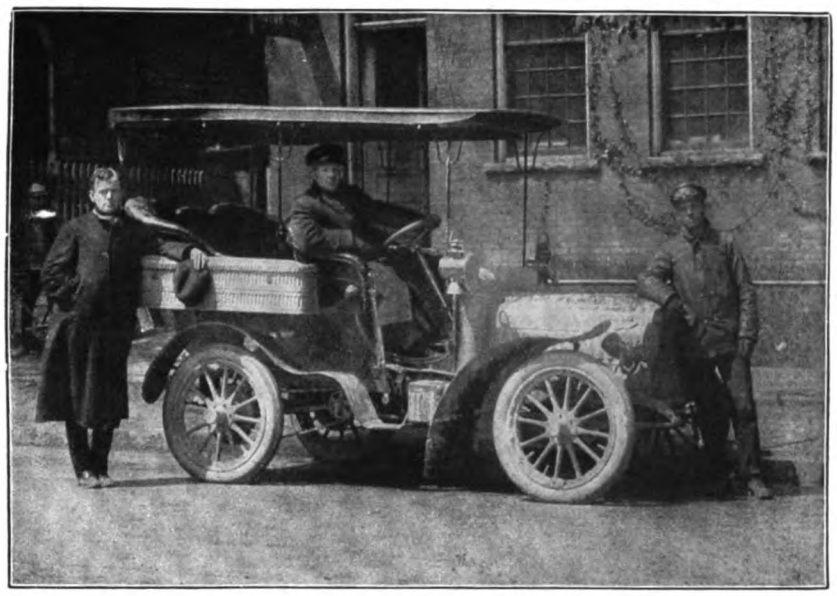
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"The 'FLYER' engine has never given any trouble, running cool at all times. I have bucked against all kinds of machines and have yet to take a back seat."
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"I believe my FLYER to be the nearest perfect car in the state of Connecticut. We have had absolutely no trouble from the beginning."
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Motoring in the Nutmeg State

(Continued from page 13.)

rect a tourist; he is, in fact, a personage worthy of wholesome respect. The various club members throughout the State, as well as the managers of the several mentioned manufacturing interests, will be found courteous to the traveler. He who will take the trip from New York to Boston will appreciate the lavishness of Mother Nature as she asserts herself in Connecticut, the "land of steady habits." By all means make the trip while the leaves are green.

A wonderful example of the force of nature's electricity, when it connects in Connecticut, is shown by one of the photographs accompanying this article. The photograph, which was taken immediately after a thunder storm (at the country place of R. R. Colgate, near Sharon), shows a tree with the bark completely stripped from its trunk to a height of thirty feet above the ground. The remarkable manner in which this destruction is wrought, the bark being but little broken up, and the trunk of the tree being almost as clean and uninjured as if stripped with the utmost care by human effort, makes this photograph truly interesting.



AN OLDSMOBILE PARTY IN ST. PETERSBURG

A Tour of a Day in Eastern Maine

(Continued from page 32.)

out all we thought wise, passing Gardner Lake and arriving in Machiasport in good time for supper. The 100 miles or so had been covered, with considerable sightseeing, between morning and evening of a summer day. The distances, of course, are nothing; and if one chooses he may lengthen out the trip by riding across country to Bangor; or, starting from Bangor in the first place (direct boat service from Boston), he can ride to Mt. Desert Island, and from there take boat to either Machiasport or Rockland. In any event the scenery is all that could be desired, the coast views are among the finest in the world, with fairly good roads and better than average hotel accommodations along the way.

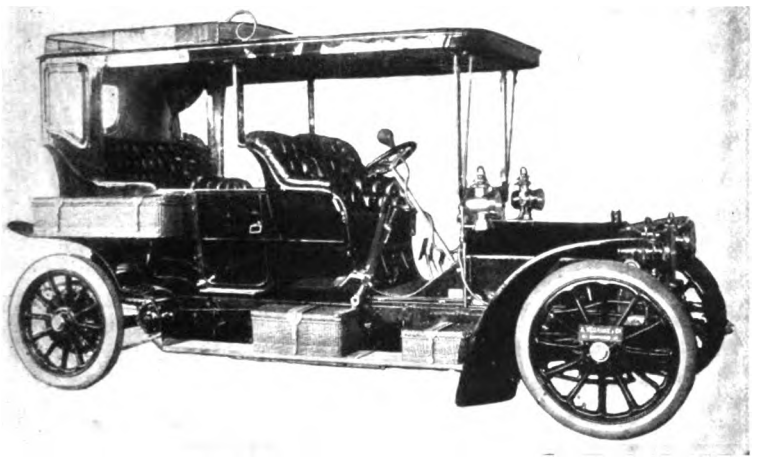
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N. P. Mercedes Palace covers 650 square meters, the big hall can hold 40 and the window 5 cars: the first floor and galleries include a fine reception room, salon Louis XVI, a smoking room, typewriting offices, French, English, German, Russian, Italian and Spanish. Public telephones. Private telephones with the Mercedes Palace, 70, Champs Elysees, and the private apartments, 71, Champs Elysees, etc., etc.



Mercedes 28/32 H. P.



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This is to Certify that the Mercedes Automobile manufactured by the Daimler Motoren Gesellschaft, of Cannstatt, Germany, the maker of which automobile bears the manufacturer's number 2330 has been sold to C. L. Charley, of Paris, under order number 1038 on under the terms and conditions of his contract with the DAIMLER MANUFACTURING COMPANY, of New York, owners of the Mercedes patents for the United States and Canada.

This Certificate confers the license to use the above described automobile in the United States and Canada only when but does not confer such license for any other automobile of the same manufacture.

In case of sale of the above described automobile, such transfer to a new owner must be endorsed on the back hereof.

Owners of Mercedes automobiles in the United States and Canada without this license certificate are liable to prosecution according to law.

C. L. Charley — A. R. Fleer, President

WARNING !

Every Mercedes car imported to America must bear a licensed tag, accompanied by a certificate of license, of which a fac-simile is given herewith. All infringements will be liable to legal proceedings.

C. L. CHARLEY,

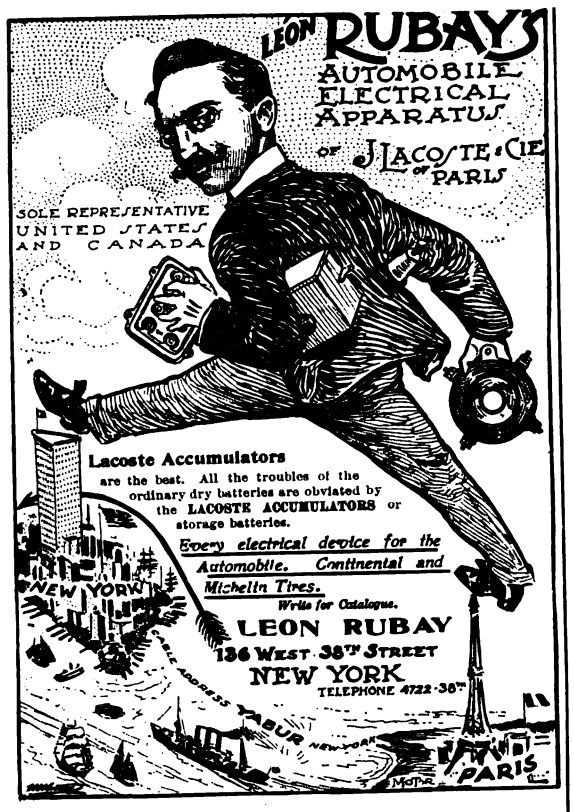
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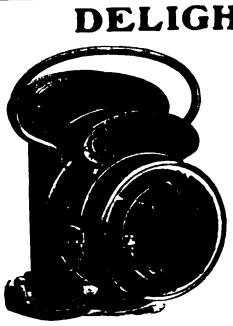
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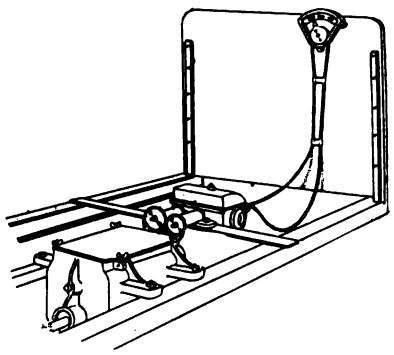
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A USEFUL INVENTION

The change-speed indicator is the latest of the many devices which have been recently brought forth for the convenience of the motorist. This appliance, which consists primarily of two flexible shafts geared to the power shaft and the lay shaft, respectively, in the gear box, and to a small indicating dial upon the dashboard, shows the relative speeds at which any two gears that it is desired to mesh are moving at any given moment. The pointer



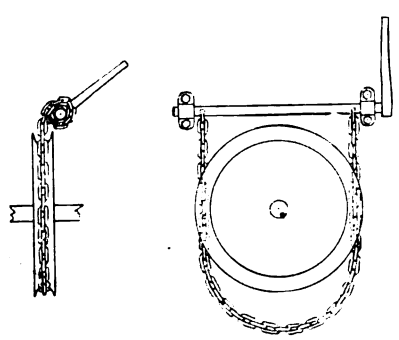
on the dial stands normally at a point corresponding to the speed on which the car happens to be running. Upon throwing the gears out of mesh, either in the direction of a higher or lower speed, the pointer commences to move slowly toward the new speed, and the moment it reaches it thereby indicates that the sliding-pinion gear and the main-shaft gear for that speed are running at exactly the same rate, whereupon, if the speed lever be moved sharply, the gears will mesh without the least difficulty or injurious clashing.

A CHAIN BRAKE

By John C. Higdon, M. E.

A very efficient brake, which I have recently invented but have not patented, as I intend to leave it open to the public, to be applied by any manufacturer or user, I call the chain brake, owing to its construction.

Chief among the disadvantages of the band brake is its inability to hold when covered with oil—the common condition, as in running a motor it is almost impossible to keep oil off the band brakes. In fact, many operators have



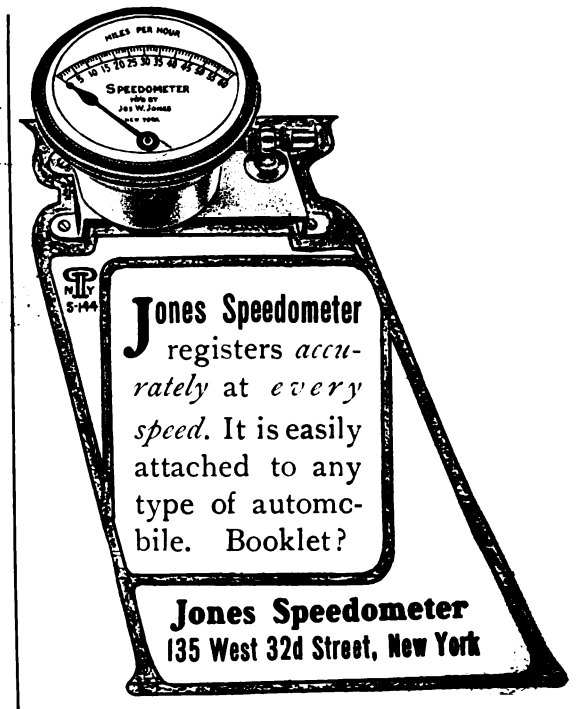
been taught to oil band brakes, to avoid unnecessary friction while running free.

The essential features of the chain brake are, as shown in the accompanying illustration, a friction wheel, A, having a V-shaped groove in its periphery, and a strong chain, B, made of plain, forged links, and hung loosely around A, from the rock shaft C.

By turning the rock shaft in its bearings, by a crank or arm, or hand lever, D, the chain is forcibly urged into contact with the sloping walls of the wheel groove, thus producing a very powerful braking effect.

To release the brake, the shaft C is simply turned in the reverse direction, thereby unwinding the chain until it hangs loose again.

This brake might be applied to the rear axle direct, to the differential, to some revolving part of the speed-changing mechanism, to the rear wheels, or to the propeller shaft.



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The G. & J. TIRE CO., Indianapolis, Ind.

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To the first 25 ordering we will ship one of the I. M. C (Lever) Steering Checks at $15, regular price $25, the purchaser agreeing to send a certified report after using.

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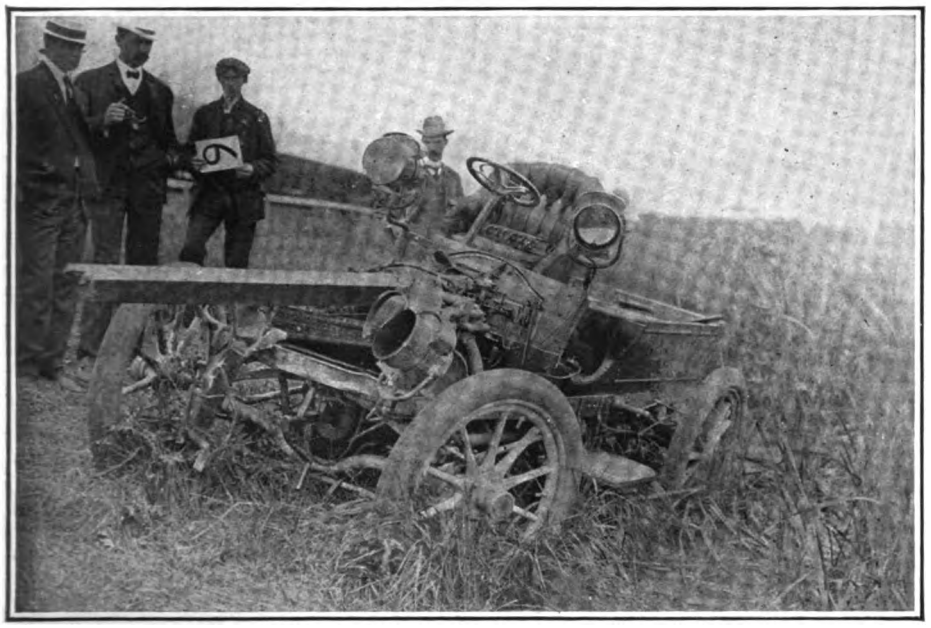
P.S.—These Checks can be used for wheel steer for light cars.

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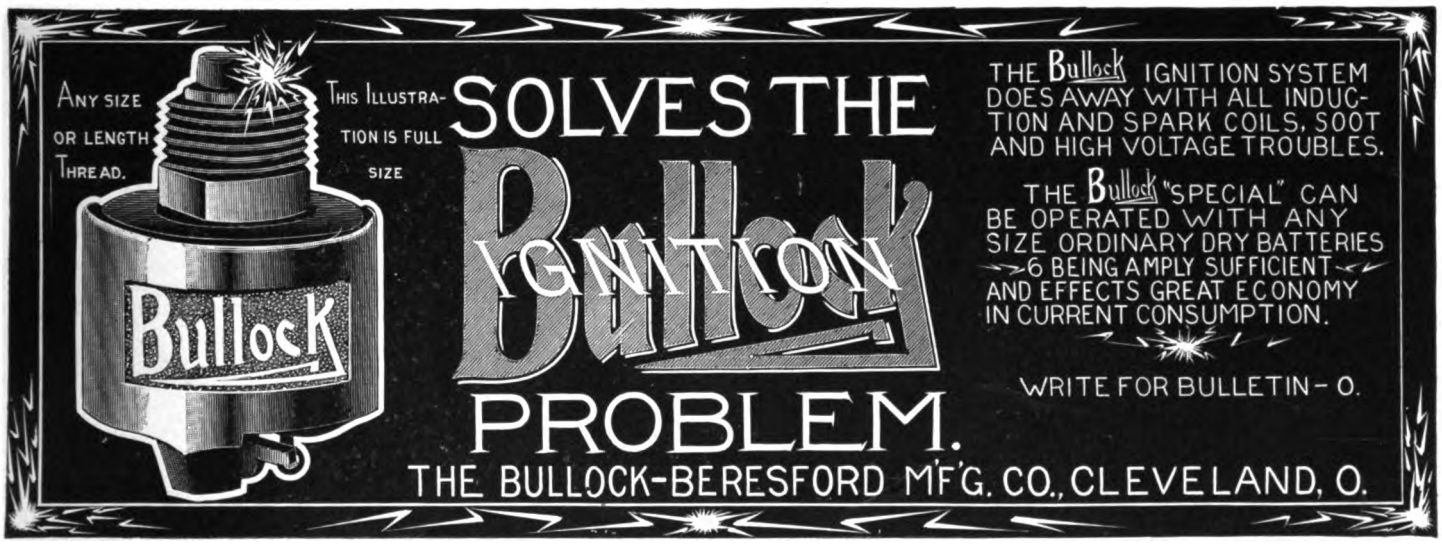
THE LIGHTS WENT OUT.

Frightful Accident to the Packard Model L Record Car at Detroit.—The Designer of the Car Nearly Killed.

According to press reports, three of the four lights went out, the remaining light was insufficient to show the track and the car smashed blindly into the fence. The lights used probably cost less than Rushmore Searchlights, but was there any economy? With one of the smallest size of Rushmore lights the accident would not have occurred. The curse of most American automobiles is false economy in material and equipment.

Insure your life to-day by adopting the Rushmore Light.

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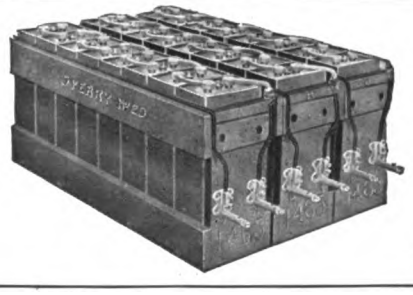
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AUTOMOBILE BATTERIES

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The Man Behind the Wheel

can dash along at high speed over rough roads or smooth roads with a feeling of security when he knows his tires are fitted to Standard Rims.

Rim responsibility is reduced and Tire satisfaction increased where these good rims are used.

See that you get them.

Western Representatives:
McCLERNAN & ORR
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You no doubt want to turn out the best Automobile possible—then get in touch with us. We know all about the goodness of

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Our Pressed Steel experience and knowledge of steel have stood us in good stead in making Frames.

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STA - RITE SPARK PLUG
Made Good As New For
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15c. for the porcelain tube and 10c. for the cap. Any part costs but a few cents; an immense advantage over many plugs. 18 sizes, $1.50 and upward; New Cadillac, $3.00. Auto Jacks, Voltmeters, Gasoline Indicators, etc.

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Formerly Detroit Motor Works, Inc., 1900. 156 Jefferson Ave., Detroit, Mich.

The "Springfield" Auto Jack



A combination of Strength, Safety, Simplicity. Actual Lifting Capacity, 2,000 lbs. Lifting Range, from 11 to 18 inches. Weight, 4 pounds.

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Express prepaid to any part of the U. S.

Manufactured and Warranted by

The Shawver Co.
Springfield, Ohio



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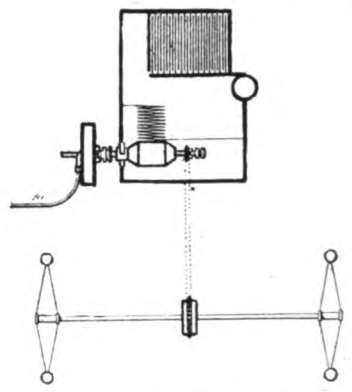
Not in Use. Absolutely Rattle-Proof.

EDISON'S LATEST INVENTION

It is generally known that, in connection with his new battery, Thomas A. Edison has been planning to provide the motoring public with some remarkably inexpensive and efficient charging plant, for recharging electric automobiles.

So far, occasional newspaper and other stories, all very indefinite, are all that have appeared on the subject.

It is now announced, however, in the Official Gazette of the United States Patent Office, that a patent has been allowed Mr. Edison on the new system. From this it appears that a most radical and interesting departure has certainly been made; and, if the idea



works out as well in practice as it appears in theory, it is bound to become of great industrial importance.

The simplicity of the new arrangement is its most remarkable feature, it consisting, in fact, of nothing more than an ordinary electric automobile provided with a motor which will work as a dynamo when reversed, and a light, powerful water turbine, of the ordinary type, attached directly to the armature shaft. A flexible hose for connection with any convenient source of water supply completes the equipment.

According to the claims of the inventor, with the new system it is necessary only to disengage the motor from its normal drive to the wheels and reverse its operation in the manner stated, which promptly recharges the batteries, at small expense, and from a current supply exactly adapted to their requirements.

The Practical Motor Car

The attention of those doubters who believe that the automobile is short lived and of little utility should be directed to the accompanying illustration, which is of an English automo-



bile built several years ago, but which has been run 40,000 miles by its owners, the Mitchell Brothers, of Dumfries, Scotland.

Eight motor cars are soon to be purchased by the administrator of the Hungarian postal and telegraph system, and will be used for collecting mail and parcels in a number of the larger cities and towns of that country. It is required that the cars be equipped with two-cylinder gasoline engines developing ten horsepower, and they each be capable of carrying a load of 1,000 pounds and two persons. A maximum speed of 18½ miles an hour is required, while an average speed of at least three miles an hour on seven per cent. grades is likewise insisted upon.

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THE KING OF ALL PNEUMATIC TIRES

Universally used by ninety per cent of the best automobile builders in the world.
More records made by cars equipped with MICHELIN TIRES than all others together.
Winner of Gordon Bennett Race 1901-1902-1904.
La Roche in his wonderful drive of eleven hundred miles with Darracq car without a stop, had his car equipped with MICHELIN TIRES.
The first car to reach St. Louis from New York was equipped with MICHELIN TIRES.
MICHELIN TIRES predominate at the St. Louis Fair.
Fifty-two of the world's best motor cars are shown by twelve leading manufacturers, and of these forty-nine are equipped with MICHELIN TIRES.
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ANOTHER WESTON PATENT SUSTAINED.

Patent No. 497,482 for Shunts for Electric Light and Power Stations sustained by His Honor, Judge Holt, of the United States Circuit Court, Southern District of New York.

Extract from the opinion of the Court, in the case of the
WESTON ELECTRICAL INSTRUMENT CO. vs. EMPIRE ELECTRICAL INSTRUMENT CO.

"This is a suit to restrain the infringement of a patent, No. 497,482, dated May 16th, 1893, issued to Edwin Weston, and now owned by the complainant, for a shunt for electric light and power stations. There are no questions as to jurisdictions, parties or title. **The proof of infringement is conclusive, and is not controverted.** . . . Prior to Weston's patent in 1893, no practical method for the use of a shunt in connection with the measuring instruments for such large currents had been found, although the necessity for such an instrument was thoroughly appreciated, **and many electricians all over the world attempted to invent one.** In actual practice no shunt at that time was used. The measuring instrument was applied to the entire current, but the result was unsatisfactory. The measuring instruments were complicated, inconvenient and expensive, and the measurement which could be made by them were inaccurate and unsatisfactory.

"The essential problem in discovering a shunt which could be used with a powerful current was not electrical but thermal. . . . The instruments manufactured under Weston's patent **immediately entered into substantially universal use** in all large central electric power and light stations, and have ever since been used almost exclusively as ammeters for large electric currents. . . . All the shunts relied upon by the defendants were shunts which made no use of the methods which Weston used to dissipate the heat in the case of a large current. **None of them had struck upon the idea of making the plates of high resistance short, so that the heat in them would be rapidly absorbed by the terminals, and none of them had hit upon the idea of making the terminals massive,** so that they would radiate a large amount of heat rapidly from the plates of high resistance. **I think that Weston's patent not only embodies invention, but that it embodies invention of a very high and superior order. It adopted a method of dissipating heat which was not only novel, but was in a line entirely opposite to the direction in which all other electricians had been working.** . . . La Roche testified that he constructed in or about 1884 an instrument called a voltmeter, and a shunt, and that from 1884 until about 1888 or 1889, he used this shunt in connection with this voltmeter as a measuring instrument, for the purpose particularly of testing storage batteries, at his workshop in Germantown or Philadelphia. . . . The evidence establishes, in my opinion, that the instrument called a voltmeter was formed by putting together a number of instruments or parts embodying different inventions, none of which had been made or was known to electricians before Weston applied for his patent; that it would have been a marvelous and almost impossible thing for the most skilful electrical inventor at that time to have devised such an instrument; that La Roche is a man not only without any scientific education, but without even the ordinary electrical knowledge of a skilful electrical mechanic; that his reputation for veracity is bad; that his shunt **never was used as a measuring instrument in connection with his voltmeter between 1884 and 1889; that the various pieces of apparatus constituting the voltmeter were put together by La Roche after the issue of the patent in suit to Weston with the object of being used in support of his own untruthful testimony** to be given in this and other suits for the purpose of attempting to invalidate this and other patents issued to Weston: **that a part of the apparatus contained in the said voltmeter are two magnets, which are so arranged that their poles neutralize each other; that as a result it is impossible for a current of electricity in passing through the instrument to move the coil; that therefore the instrument is and always has been inoperative, and that the shunt could not have been used as a measuring instrument in connection with it.** In short, I cannot avoid the conclusion that the testimony of La Roche in this case was deliberately and intentionally untruthful, and that to support it he deliberately fabricated an instrument to be used upon this trial and other trials involving Weston's patents. **It was a careful, premeditated and elaborate attempt by untruthful testimony, fortified by fabricated exhibits, to deprive Weston of his just rights in his inventions, to impose upon this Court, and to pervert the course of justice. I direct that the evidence and exhibits in this case be submitted to the District Attorney in order that he may take under consideration the question whether a prosecution should be brought against La Roche for perjury."**

WESTON ELECTRICAL INSTRUMENT CO., Waverly Park, NEWARK, N. J.

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MOTOR CALENDAR

Motor-Vehicle and Motor-Boat Exhibitions, and Aeronautical Contests, at St. Louis World's Fair

JULY

SAT. 23 to Aug. 5	Spa Automobile Fetes
SAT. 23 to Aug. 5	Motor-Boat Races, Lucerne, Switzerland
TUE. 25 to Aug. 10	St. Louis World's Fair Run
SAT. 30	Race Meet, Newport, R. I.
SAT. 30	British International Cup Race for Motor-Boats, in the Solent

AUGUST

WED. 5 to Aug. 11	Paris-Deauville Motor-Boat Race
THUR. 11	New York Yacht Club Motor-Boat Races, Glen Cove, Long Island.
FRI. 12	Motor-Boat Race for Gaston-Menier Cup
SAT. 13 to Aug. 14	Calais-Dover-Calais Motor-Boat Race
MON. 15	Calais-Boulogne-Calais Motor-Boat Race
THUR. 18	New York Yacht Club Motor-Boat Races, Newport, R. I.
FRI. 19 to Aug. 20	Race Meet, Cleveland, Ohio
MON. 22 to Sept. 4	Paris Commercial Vehicle Trials (A. C. France)
SUN. 28	Ventoux Hill Climbing Contest, Avignon, France
MON. 29	Race Meet, Milwaukee, Wis.

SEPTEMBER

FRI. 2	Chateau Thierry Hill Climb
	Reliability Trials, Automobile Club of Great Britain and Ireland
MON. 5	Race Meet, Nashville, Tenn.

OCTOBER

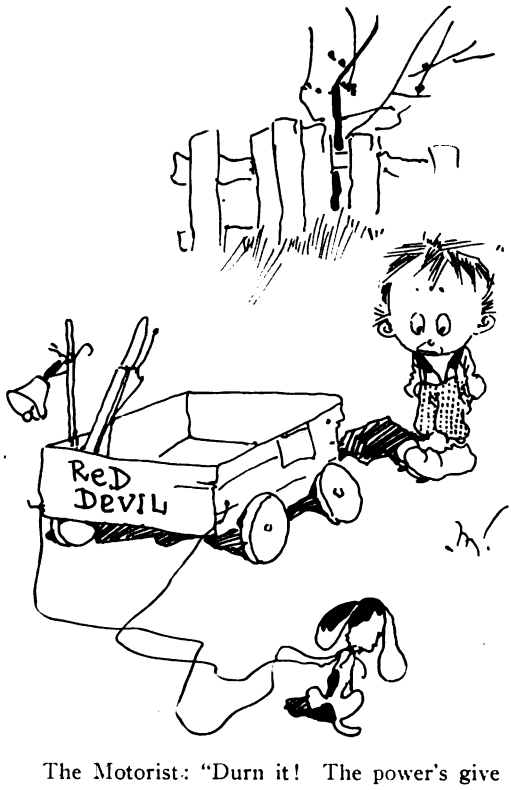
To Nov.	Light Van Trials, England.
SAT. 1	Cross-Country Run, Philadelphia, Pa.
WED. 5	Dourdan Kilometer Trials
SAT. 8	Vanderbilt Cup Race, Long Island, N. Y.
SUN. 9	Gaillon Hill Climb
FRI. 14 to Oct. 22	Leipzig Cycle and Motor Show

NOVEMBER

SUN. 20	100-kilometer Trials (Algeria)

DECEMBER

Paris Salon



The Motorist: "Durn it! The power's give out agin! I'll have to git a bigger doig!



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Storage Tanks
Of All Sizes and Dimensions
L. O. KOVEN & BROTHER, Mfrs.
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"THEY NEVER DISAPPOINT"

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Cost no more then other automobile lamps.
A perfectly equipped plant for making automobile lamps and buying material at lowest prices enable us to do this.
When buying automobile lamps, buy the best—the "Richmond."

The address is important. Here it is:

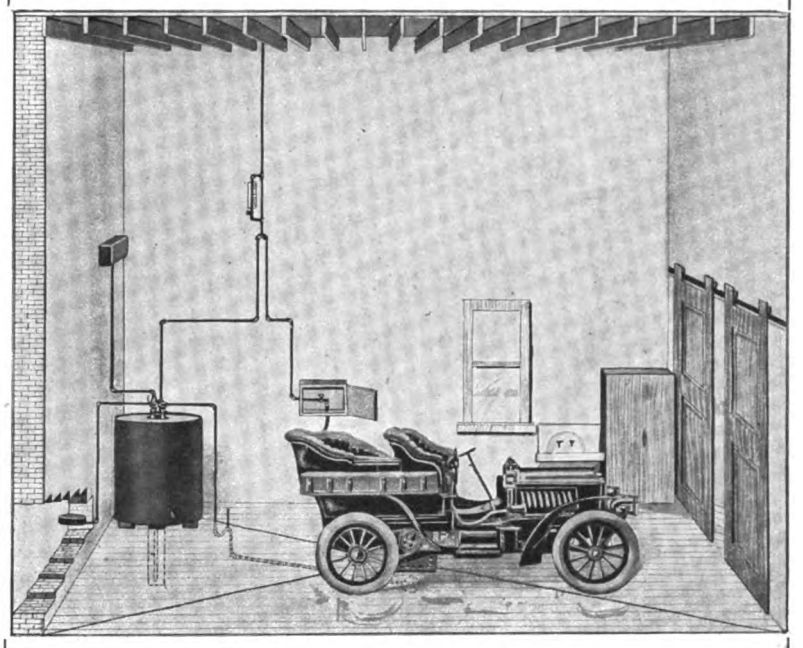
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It is the ONLY SYSTEM for STORING and HANDLING GASOLINE

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PERFECTED DUNLOP

Detachable Automobile Tire....

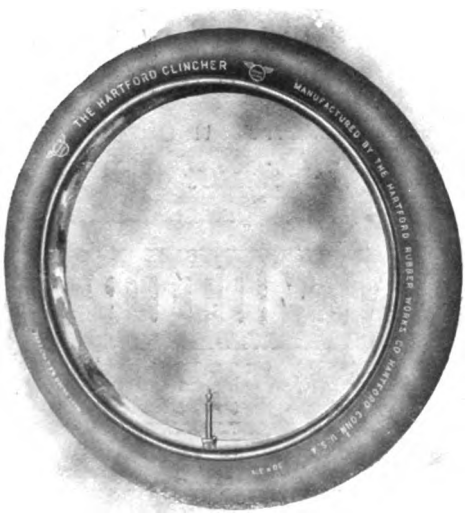


It can be detached by a novice in less time than any other tire.

No lugs. It will *not creep* when inflated.

Portion of rim pressing on tire has no sharp edges or angles.

Tire cannot blow off rim when inflated.



The Hartford Clincher Tire....

The ideal tire of this type for American roads.

Fits the standard G. & J. rim.

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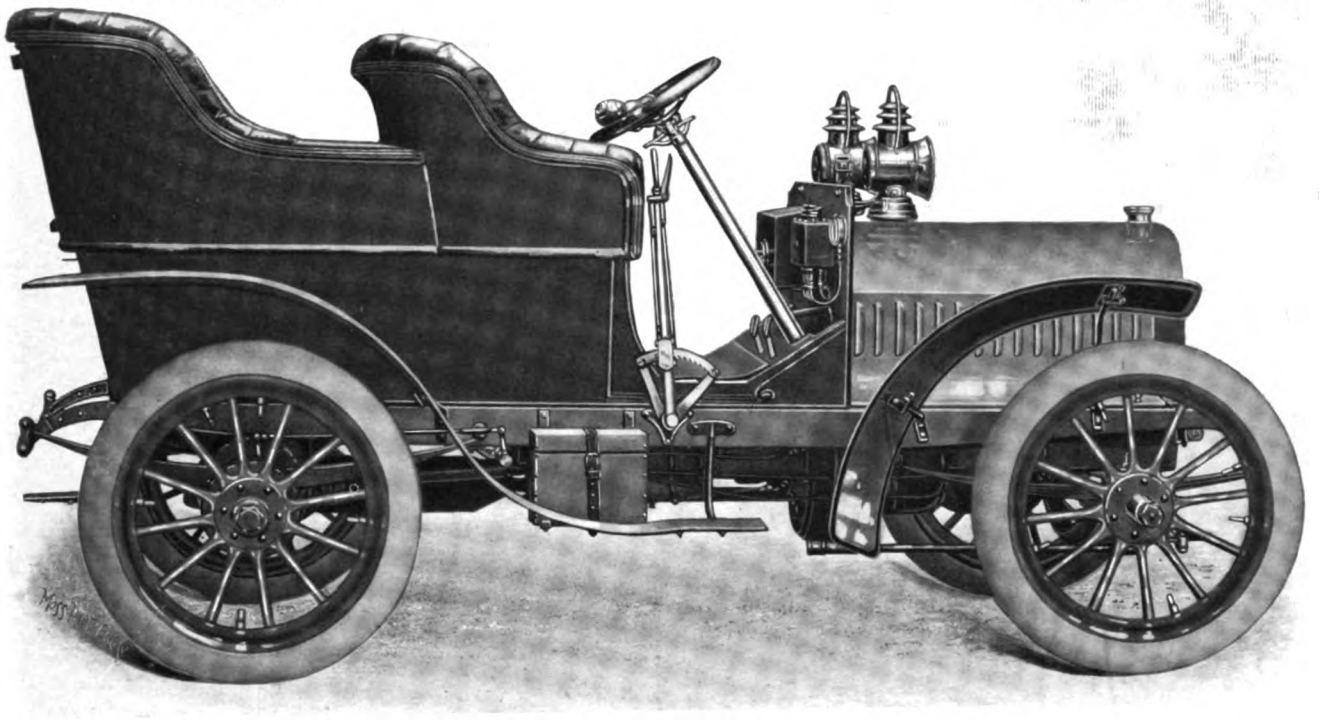
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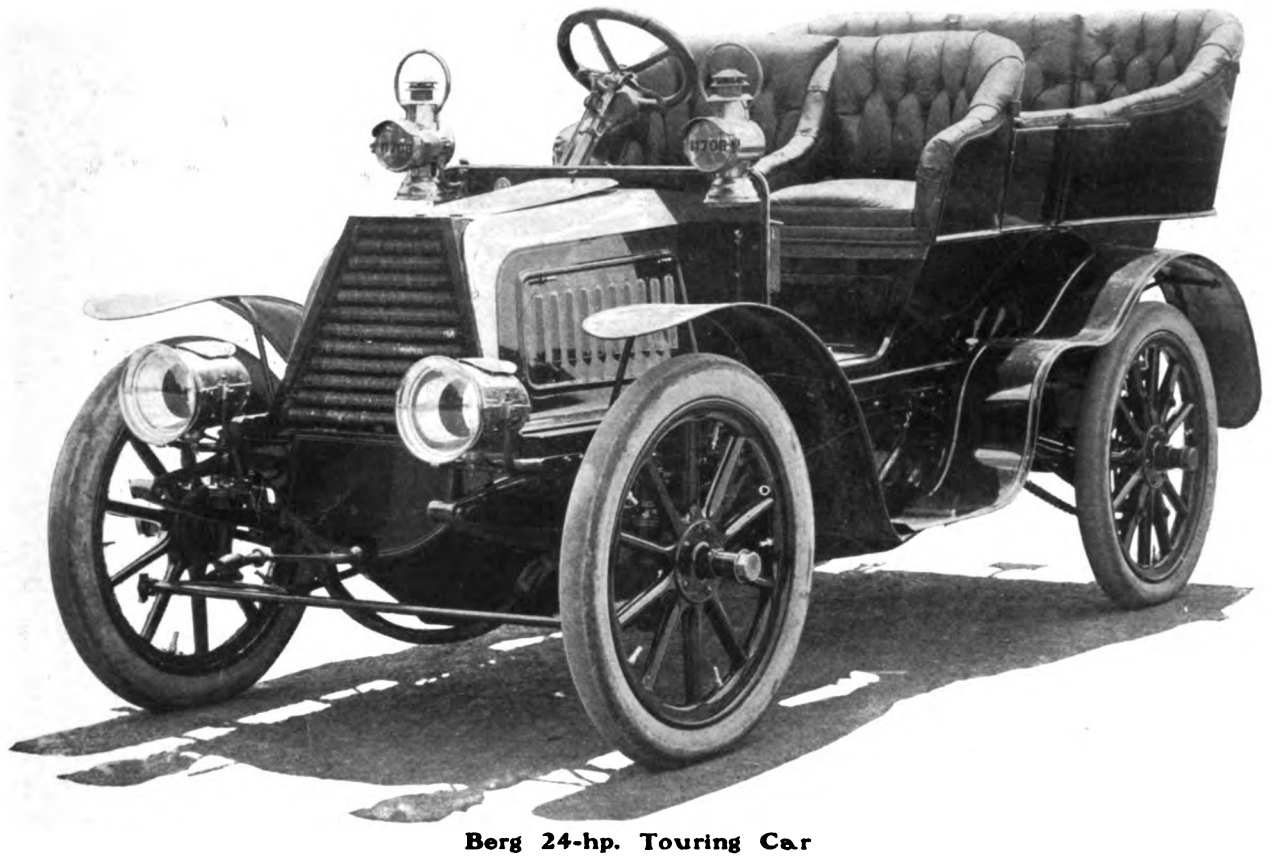


Meteor 18-hp. Touring Car

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WINTON



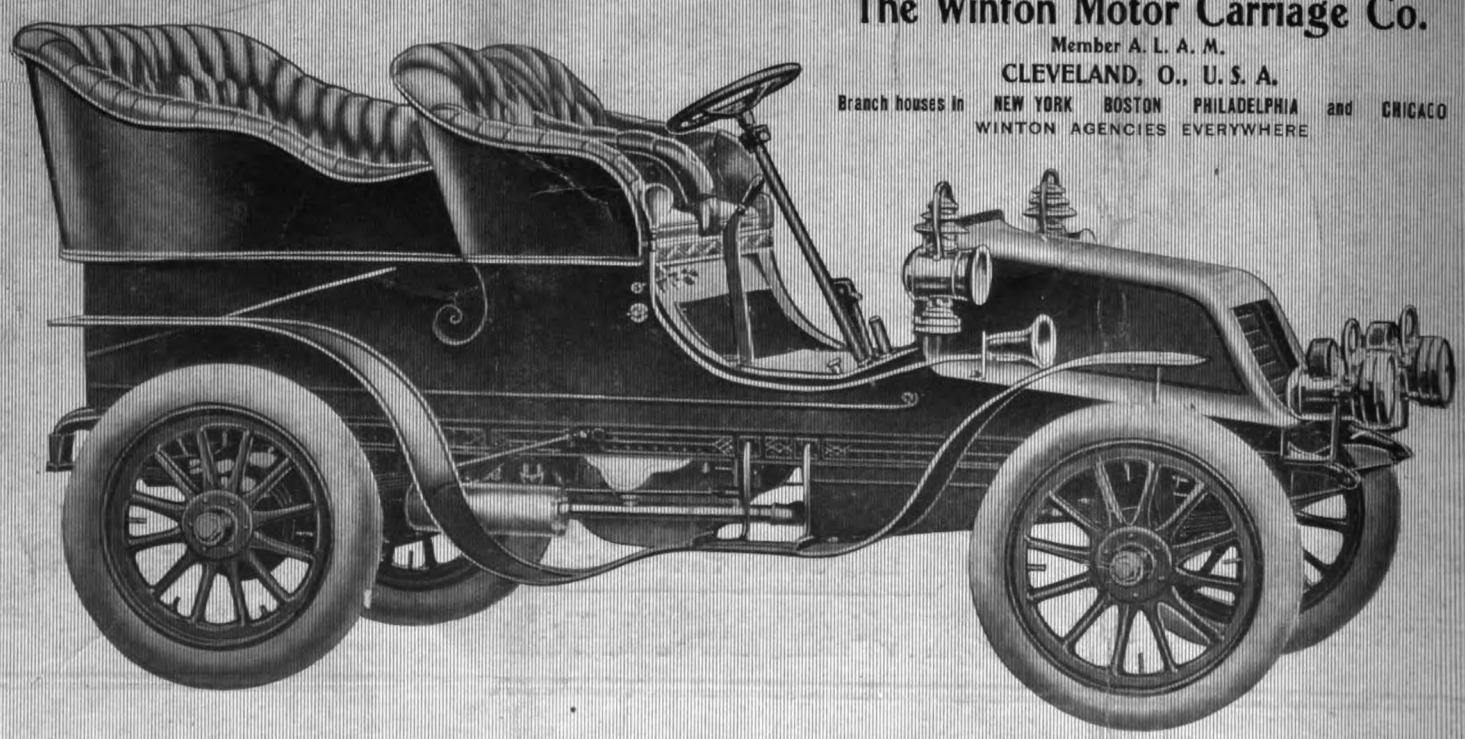
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From Mexico to Puget Sound
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His WINTON never balked or failed him. The WINTON is made that way: it has inherent merit. The best to buy because the best in service.

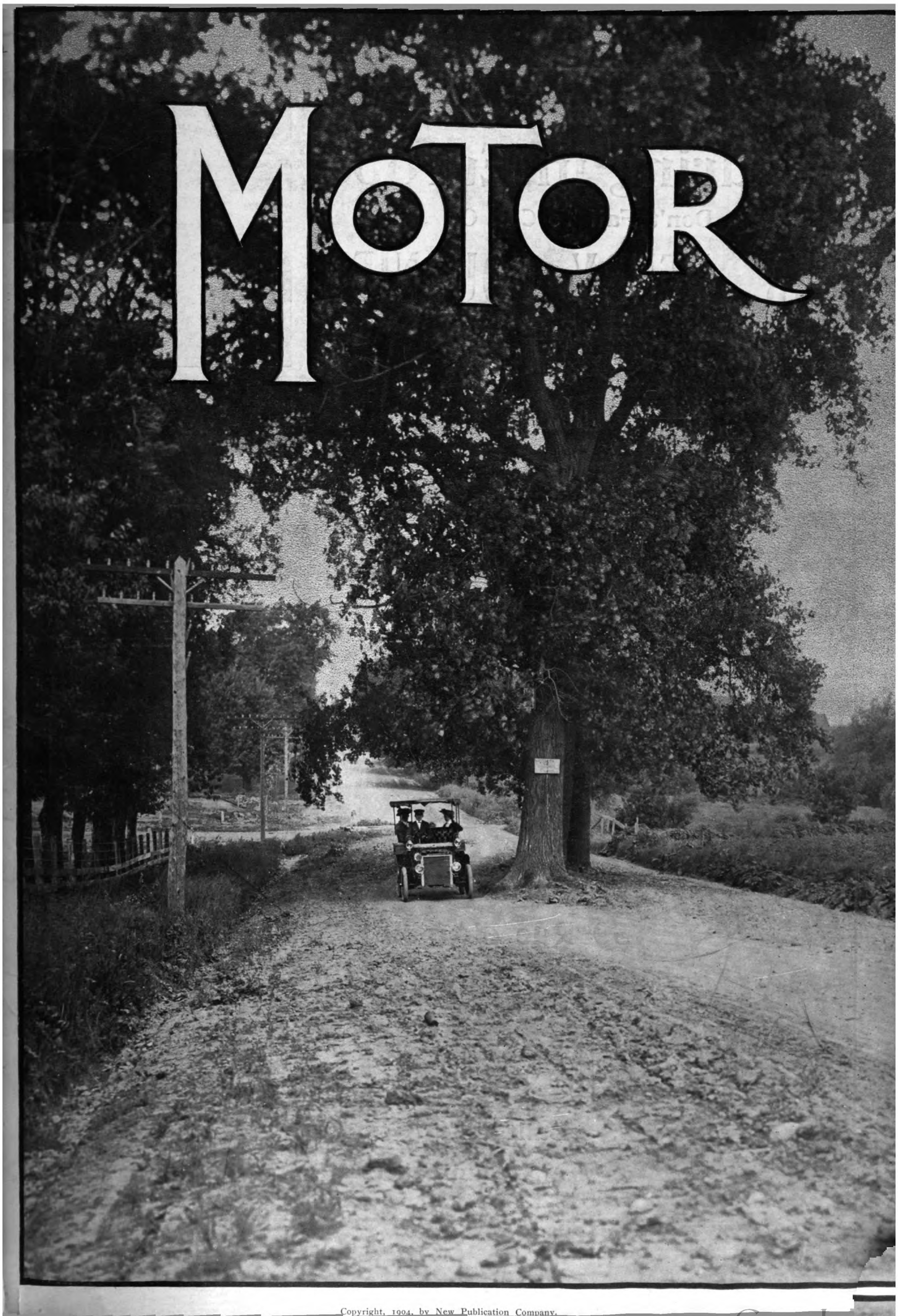
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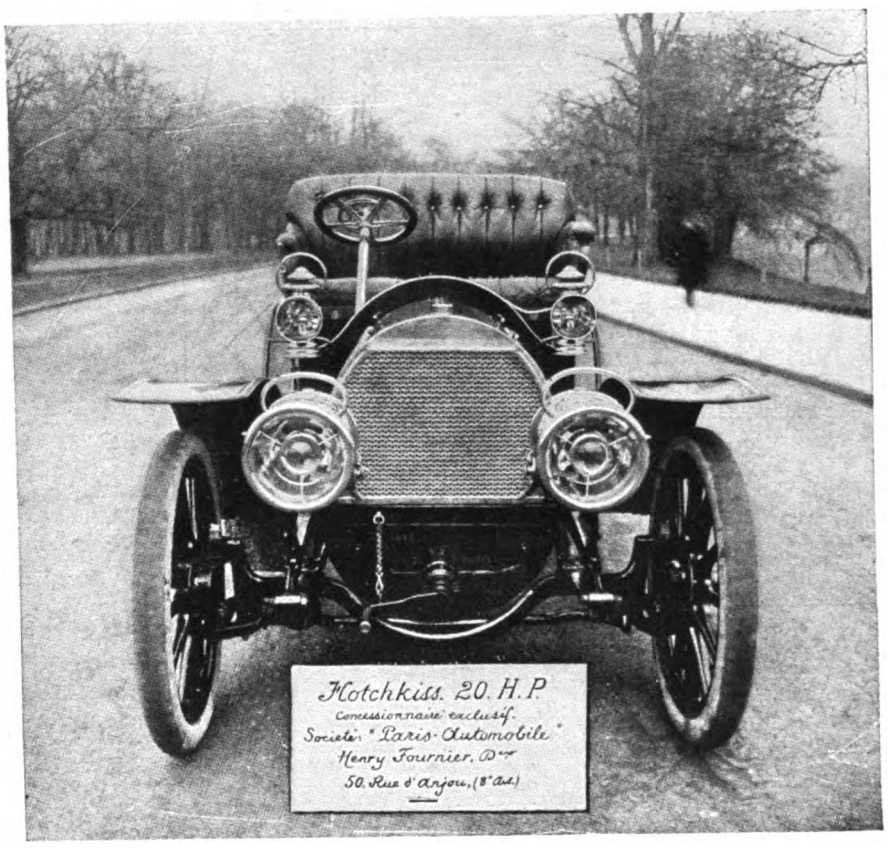
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ATLANTIC CITY, N. J.—Young's Hotel.
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BEDFORD, PA.—Bedford House.
BEDFORD, PA.—Hotel Chalybeate.
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BOSTON, MASS.—The Berkeley.
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BUFFALO, N. Y.—Mansion House.
BUFFALO, N. Y.—The Iroquois.
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CATSKILL, N. Y.—Smith House.
CHICAGO, ILL.—Edinburgh Hotel.
CHICAGO, ILL.—The Stratford.
CHICAGO, ILL.—Victoria Hotel.
CHICAGO, ILL.—Lexington Hotel.
CHAMBERSBURG, PA.—Hotel Washington.
CINCINNATI, OHIO.—Grand Hotel.
CLASON POINT, N. Y.—The Inn.
CLEVELAND, OHIO.—Kennard.
COLUMBUS, OHIO.—Chittenden.
DELAWARE WATER GAP, PA.—The Glenwood.
DELAWARE WATER GAP, PA.—Water Gap House.
DETROIT, MICH.—Hotel Metropole.
EASTON, PA.—Paxinosa Inn.
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ELYRIA, OHIO.—Andwur.
ERIE, PA.—Reed House.
FREDERICKSBURG, MD.—City Hotel.
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GREAT BARRINGTON, MASS.—Berkshire Inn.
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JACKSON, N. H.—Glen Ellis House.
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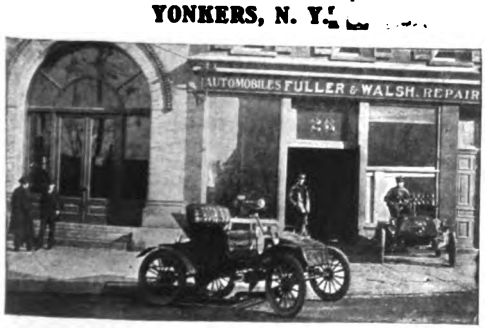
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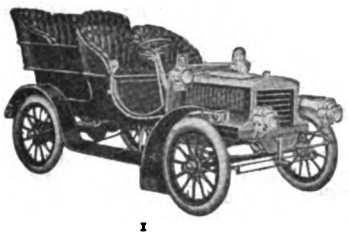
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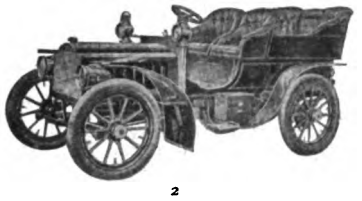
WHICH IS WHICH?

Here are 12 standard makes of motor-cars. Can you name them? In order that a novice may be on an equal footing with an expert, we have selected only those cars of which there are pictures *with names* in the advertising columns of MOTOR—thus making the solution simple *for the careful observer.*

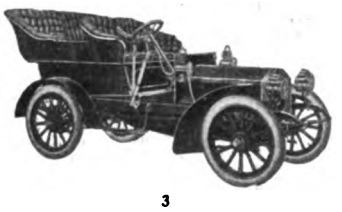
Every one naming the cars correctly will receive a prize



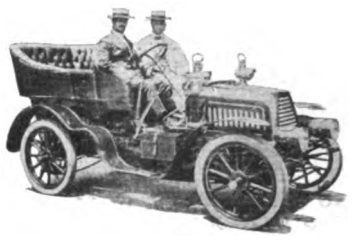
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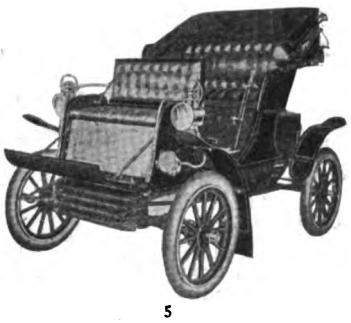
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3



4



5

...PRIZES...

1st—Jones Speedometer

2d—An Automobile Clock

3d—A Pair of Royal Hampers

To every one who names the cars correctly a year's subscription to MOTOR .. .. ..

FOR LIST OF PRIZE-WINNERS OF THE AUGUST MOTOR PUZZLE SEE PAGE 5



7



6



8



9



10



11



12

BE SURE TO READ THESE RULES

After having indicated the name of each car in the slip on this page, tell in 25 words or less which of these 12 cars you prefer and why.

The first prize—a Jones Speedometer—will be awarded to the person sending a correct solution, and, in the opinion of the Puzzle Editor of MOTOR, the best article; the second prize for the second best; etc.

You may send as many different sets of answers as you like, but each must be on a separate slip cut from MOTOR'S puzzle page. The same article may be used in each answer.

Mail the letter containing your solution of the puzzle so that it will reach MOTOR'S office not later than September 15. For the names of successful contestants see October MOTOR.

USE THIS SLIP

Fill out—cut out—mail to-day to

MOTOR, 1789 Broadway, New York City

1 .....7 .....

2 .....8 .....

3 .....9 .....

4 .....10 .....

5 .....11 .....

6 .....12 .....

I prefer the..... car because.....

.....

.....

Write your name and address here.....

.....

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THE AUGUST PRIZEWINNERS

The thousands of answers to the August Motor Puzzle Contest which we have received far exceeds our most sanguine expectations. They are conclusive evidence of the widespread interest there is in MOTOR and in motoring. Answers were received from every State in the country, and from Canada, Mexico and Europe. Were it not for the lack of space we would print the names of every one who tried to name the cars, whether successful or not. As it is, we publish only the prizewinners and a few of the hundreds who named the cars correctly.

Following are the names of the prizewinners:

1st Prize—$100 Rushmore Searchlight, ... Edward Fifield, 430 Ellison St., Paterson, N. J.
2d Prize—$50 Set of Searchlight and Sidelights, Gordon E. Varney, Automobile Club of Indiana, Indianapolis, Indiana.
3d Prize—$25 Imported Motorcar Horn, . . . Miss M. Nash, 2907 Jackson St., San Francisco, Cal.

Following are the names of those who, having named the cars correctly, are entitled to a subscription to MOTOR:

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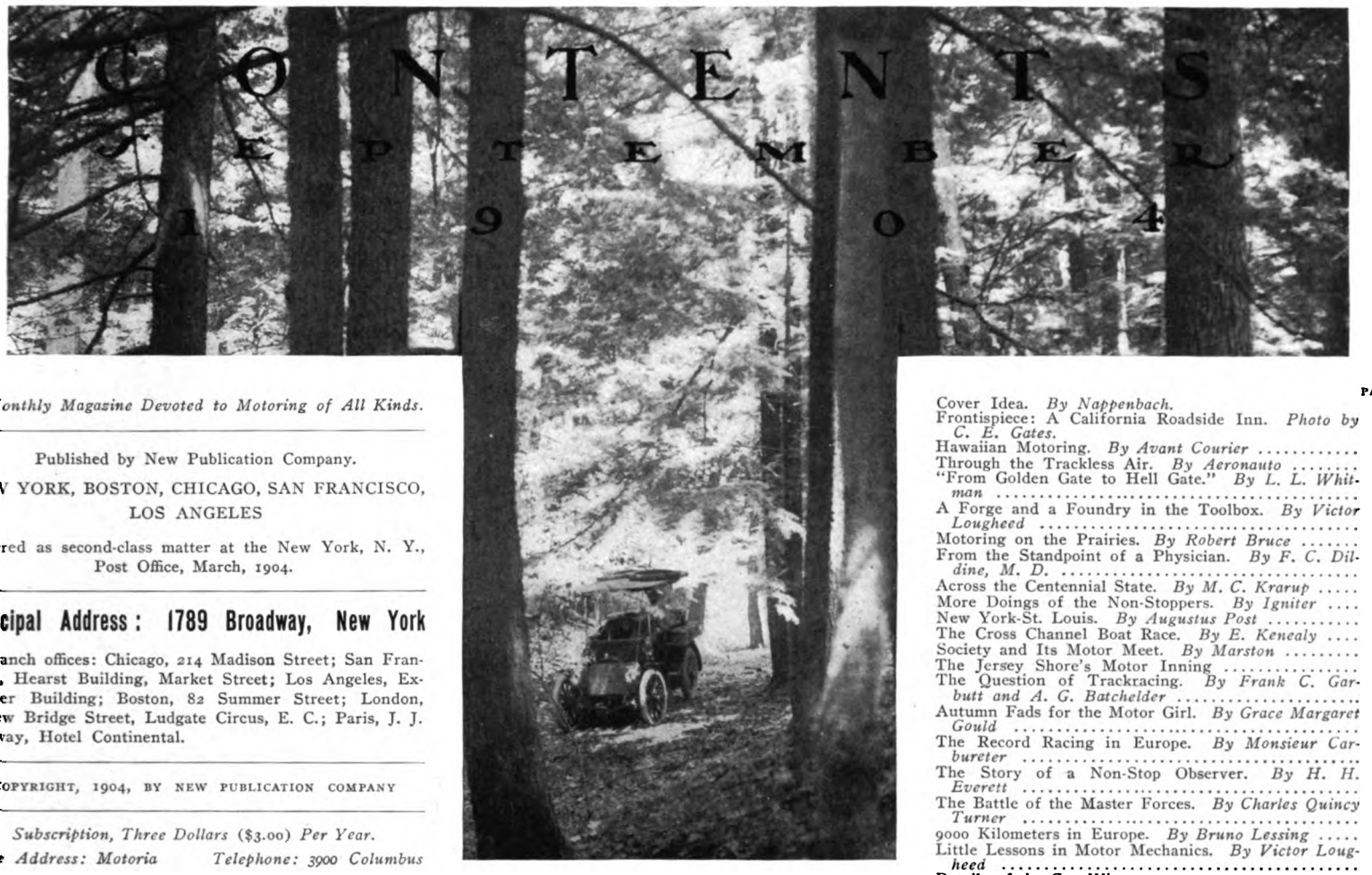
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A Monthly Magazine Devoted to Motoring of All Kinds.

Published by New Publication Company.

NEW YORK, BOSTON, CHICAGO, SAN FRANCISCO, LOS ANGELES

Entered as second-class matter at the New York, N. Y., Post Office, March, 1904.

Principal Address: 1789 Broadway, New York

Branch offices: Chicago, 214 Madison Street; San Francisco, Hearst Building, Market Street; Los Angeles, Examiner Building; Boston, 82 Summer Street; London, 5 New Bridge Street, Ludgate Circus, E. C.; Paris, J. J. Conway, Hotel Continental.

COPYRIGHT, 1904, BY NEW PUBLICATION COMPANY

Subscription, Three Dollars ($3.00) Per Year.

Cable Address: Motoria *Telephone: 3900 Columbus*

Postage free in the United States, Canada, Mexico, Hawaii, Porto Rico, and the Philippines. Postage to other countries, $1.00 per year extra. Address business communications and make checks payable to MOTOR. Anything connected with the editorial department should be addressed to the editor.

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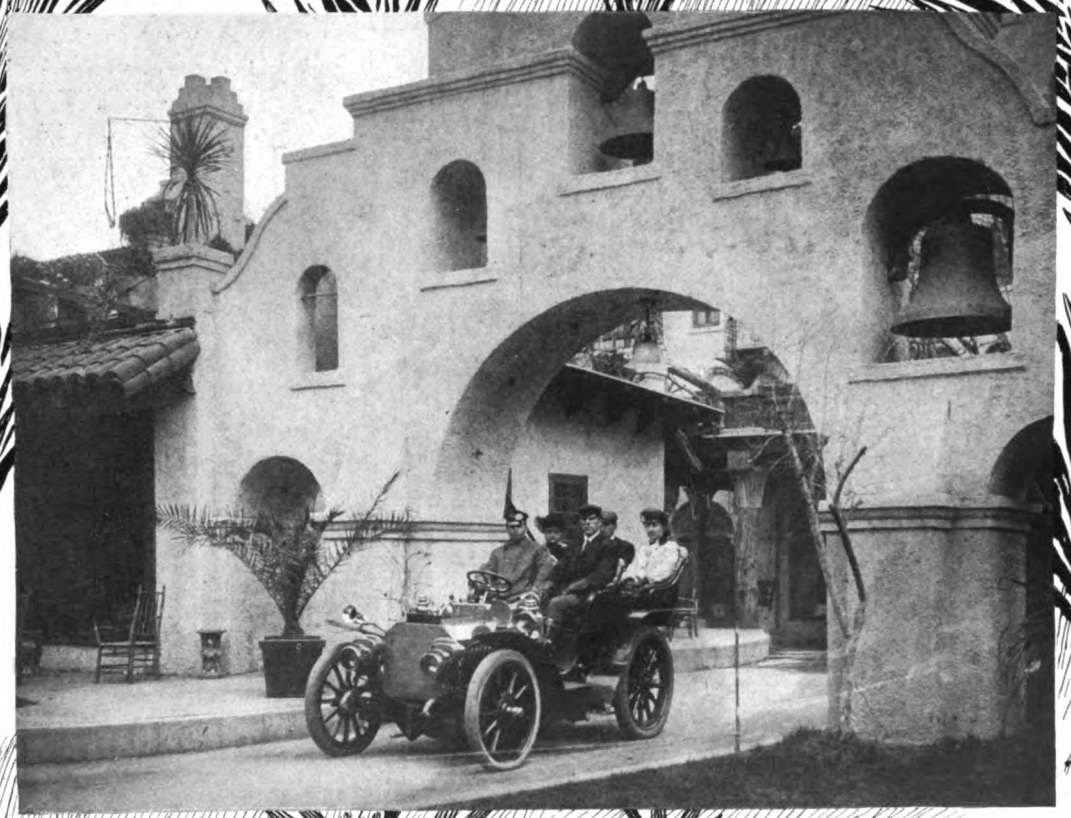
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THE ATTRACTIVE ENTRANCE TO A SOUTHERN CALIFORNIA ROADSIDE INN.—A PORTAL IN THE MISSION STYLE OF ARCHITECTURE, WITH CENTURIES-OLD BELLS FROM SPAIN

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M O T O R

DEVOTED TO MOTORING OF ALL KINDS

Vol. 2. No. 6 **SEPTEMBER, 1904** **Price, 25 Cents**



No other country in the world offers to the entranced eye of the pleasure seeker, who is a nature lover as well, so many vistas of beauty as do the roads in Hawaii. The Hawaiian Islands, the newest country geologically in the world—in fact, the process of manufacture still goes on—are five in number, taken from the inhabited standpoint, and four when judged as ordinarily highly attractive. From Kauai on the north, past Oahu and Maui to Hawaii on the south, there is offered a combination of attractions which can be equalled by no other group in the world. These islands lie just within the Tropics, and yet, by reason of their being in the track of the trade winds, they never are torrid. Physically they present manifold attractions. The highest point between the shores of the Pacific is the summit of the vast dome of Mauna Kea on the Island of Hawaii. This cone, from a base 30 miles in diameter, rises 14,000 feet from the sea, and since in reality the exposed portion is but half of the real mountain, whose base lies on the floor of the mountain, there is nothing in the surroundings to detract from the majesty of the dome as seen from the steamers which ply along either side of the island. The first view does not impress one that the great mountain is so high, but it grows on one; and finally the picture, a water color in effect, painted by the sun shining on the glistening snowcap, forms one of the most attractive of views in tropical grandeur. Along the sides of this mountain and its sister peak, Mauna Loa, only a few hundred feet lower, are tropical forests, even jungles, through which lie routes offering vistas of rare beauty.

Over these roads, of which about eighty per cent. are macadam boulevard, eighteen per cent. earth, and two per cent. very rough lava, the driving of a motor car means the enjoyment of the greatest pleasure that the new conveyance may give. In circling the big island, every possible change of view is offered. Often a stretch of road will lie through a bower of fern and koa trees, the roadway hedged with roses, from which one emerges to cross a lava bed dotted here and there with formations so strange and unusual that one's interest is aroused and held. Along a hillside, perhaps 1,500 feet above the sea, the road will run through seemingly interminable groves of coffee or fields of cane, to curve suddenly around a small gulch until one finds himself going across a spider-web bridge far above a tumbling little torrent. Again one ascends to plateaus where the air is cool and bracing by reason of the elevation, and for miles speeds over level prairie dotted everywhere with bunches of cattle and horses.

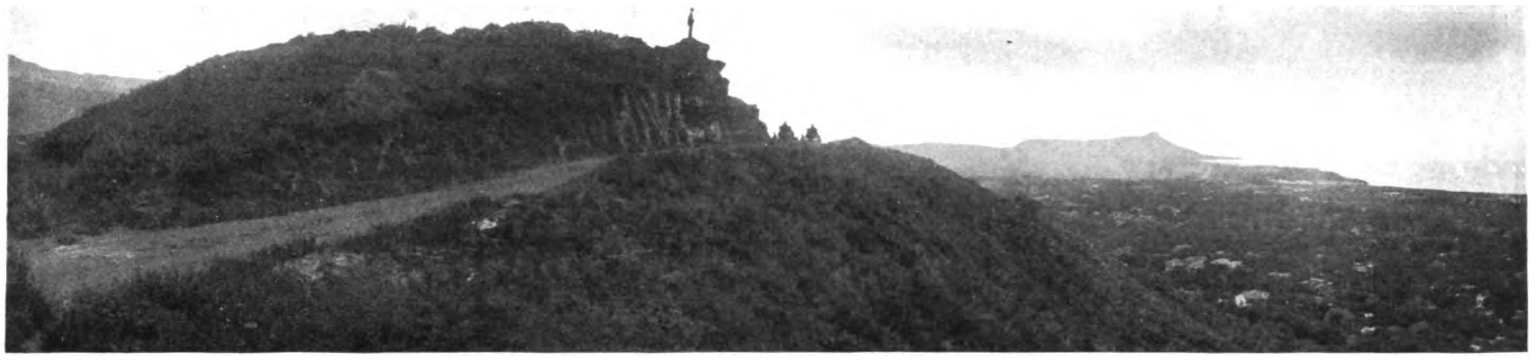
Some little difficulty is encountered in meeting the problem presented by the lava fields. The surface cuts like emery, and it is not infrequent that a horse newly shod for your drive in the morning loses his shoes by their being worn off before he is stabled at night. Strange as it may seem, the lava is not as hard on rubber tires.

In Honolulu, the capital and business centre of the territory, motoring has passed the stage of fad. In 1900 a well-equipped company went into the business of conducting a cab service with electric machines. Its rolling stock was of primitive type, exceedingly heavy, and breakdowns were so frequent that the cars fell into some disrepute, were shipped back to Chicago, and there later destroyed in a fire. A locomobile hack service was maintained for a time, but was not commercially successful. Both of these experiments were of service in installing the machine in the good graces of the island peo-



A SPIN ON A TYPICAL ROAD OF THE TROPICS

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LOOKING FROM THE PUNCHBOWL TOWARD DIAMOND HEAD, ACROSS THE RESIDENTIAL SECTION OF HONOLULU

ple and in opening their eyes to the merits of the new vehicle.

There now is a preponderance of gasoline machines, although the steam wagons are constantly seen, one being used regularly in a mail-route stage service. One of the earliest of the steamers was a runabout brought home for her own use by former Queen Liliuokalani, some five years ago. Prince David Kawananakoa is often seen driving his own runabout or a dos-a-dos. These first cars are mostly Locomobiles, but very shortly after their introduction the gasoline machine began to appear, and now scores heavily. Half a dozen Old's runabouts were rather quickly picked up and touring cars of the same build are under order by two or three business men. C. M. Cook, president of the Bank of Hawaii, drives a Rambler tonneau to and from his mountain house. Orders are also in for Ford tonneau cars. Alexander Young, formerly Minister of the Interior, one of the prominent figures in Honolulu's business life, has a White touring car, which has made local records for speed and hill climbing.



MOTOR CARS IN A HONOLULU PARK

The roads on the island of Oahu about Honolulu are, as a rule, of the very first order. One of the most superb drives in the United States is up to the elevation of 1,800 feet, through the forest on the slope of Mt. Tantalus, immediately back of Honolulu. At no point is the grade higher that seven per cent., and most of the five miles it is less than five per cent.

Five miles from Honolulu is the greatest natural wonder within a like distance of any city in the world, the Nuuanu Pali, the sheer cliff at the head of the one valley that affords passage between the two sides of the island. It was over this precipice of close to 1,000 feet that Kamehameha the Great, the emperor whose skill and knowledge won for him the title of "Napoleon of the Pacific," drove 2,000 of his enemies to death. Around the cliffs which border it, there has been constructed a modern road, a thoroughfare of uniform five per cent. gradient—which makes of the trip the most attractive in the vicinity. The five miles offer a very pleasant half hour's ride up a valley that furnishes the principal water supply for the city, and whose lower end is dotted with fine country homes. The gap at the head of the valley is somewhat like a funnel, through which the trade winds from the northeast blow with great force. So constant are the breezes, that going up the valley, one sees many little waterfalls thrusting themselves out from the face of the cliff, only to be dissipated in mist when the wind picks up the body of water.

The delights of motor transportation are growing upon the Hawaiians, and new orders are being fast placed in the hands of makers for cars. A number of visitors who have enjoyed the beauty of this tropical wonderland contemplate bringing over cars this fall, and it is safe to assume that within a very few years it will be quite the thing for the possessor of a machine of any type to send it along when he comes to the most perfect climate in the world, to escape the northern winter. There is probably no more than one stretch in the entire archipelago where one is not in constant touch with supplies of fuel, with charging stations, and repair shops.

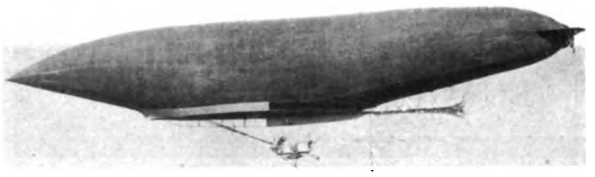


KING STREET, HONOLULU IN FRONT OF THE PALACE—DEPARTMENT OF JUSTICE BUILDING ALSO IN VIEW

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THROUGH THE TRACKLESS AIR

By Aeronauto.



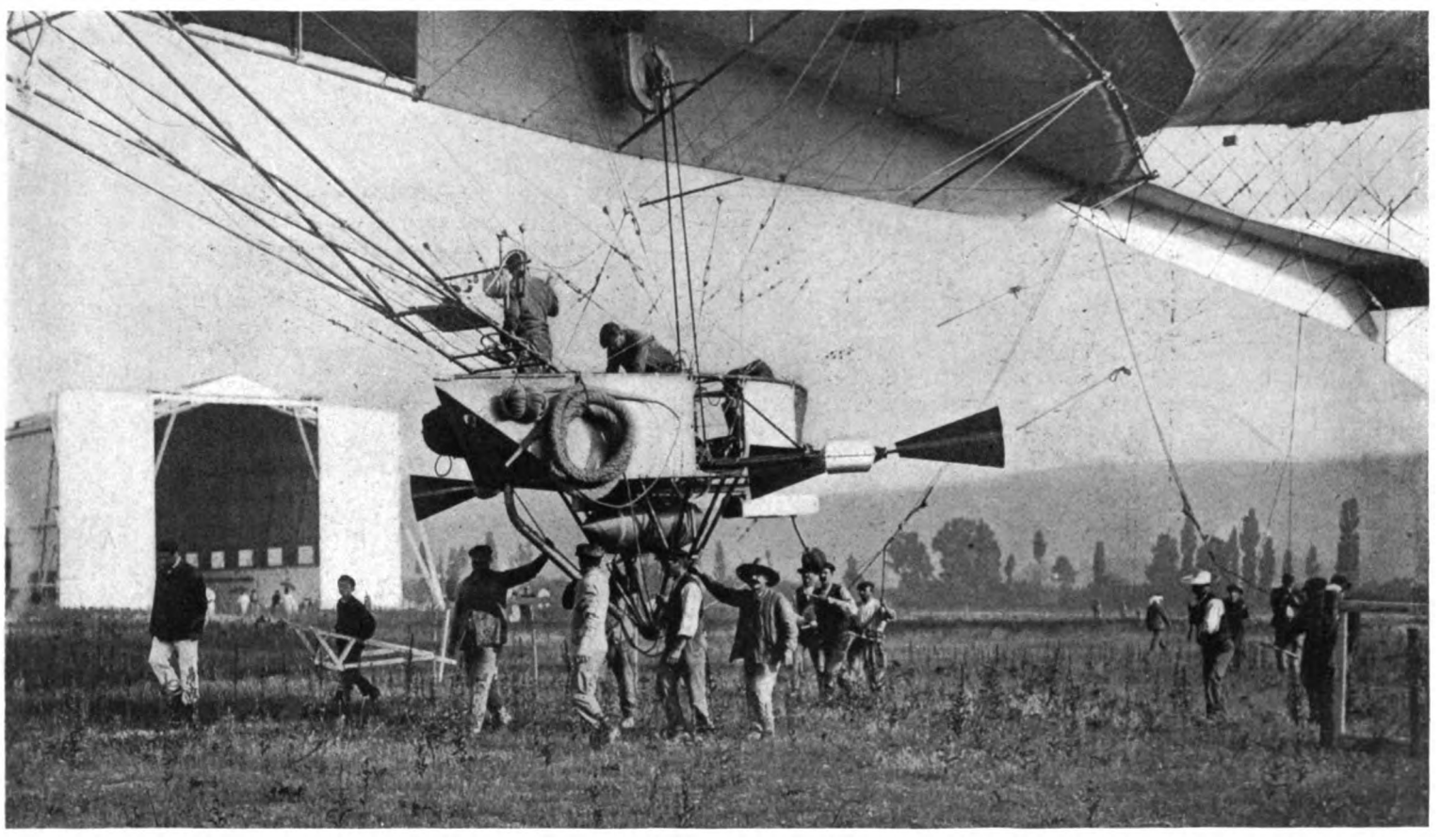


Everyone who knows of the unfortunate accident that befell the Lebaudy airship No. 1 at Calais Meudon, France, at the conclusion of its remarkably successful long-distance flight against adverse winds, last October, will be pleased to hear that a Lebaudy No. 2 has been finished, and in preliminary trials has given results indicating that it will be highly successful in practical investigation of what truthfully may be called the greatest problem that still baffles the engineer and the anxious and untiringly enthusiastic inventor.

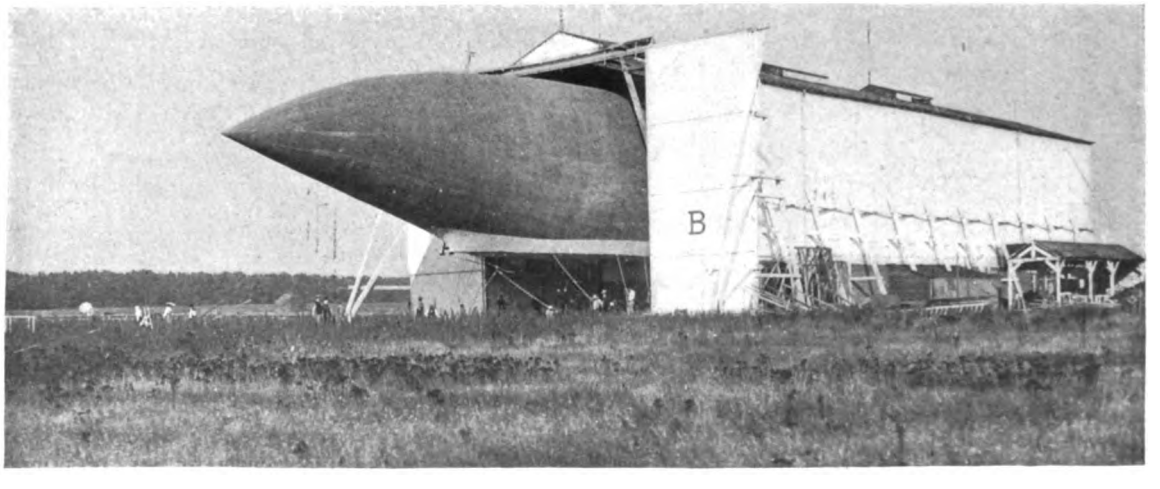
In general construction, the new Lebaudy airship follows lines similar to those of its predecessor, although it is considerably larger, carrying about 1,200 pounds of ballast in addition to fuel, passengers, etc. There is the same cigar-shaped gas bag, with a skeleton hull like an inverted pyramid hung to its under side. The envelope is much improved, being composed of two layers of a special fabric, very light and tough, with a thin, gas-proof sheet of rubber tissue between them. The whole is made still more impervious and enduring by coatings of chromate-of-lead varnish, which have the incidental effect of giving to the already uncouth leviathan of the air a bright yellow color, freakish in the extreme, and nothing if not startling in its effect upon the observer who beholds it for the first time.

Two propellers, each eight feet in diameter, are revolved at 1,000 revolutions a minute by a forty-horsepower, four-cylinder Mercedes motor, and at this rate of rotation they are capable of imparting to the craft a speed of twenty-five miles an hour, in still air.

Thus the difficult conquest of the trackless air goes on, surely and inevitably. It is, indeed, increasingly evident that man is nearer than ever before to the production of a truly successful flying machine—the great "will-o'-the-wisp" of mechanical science that no human eye has ever seen, but which the human mind has conjectured to itself for ages; the almost inconceivably portentous invention that has occupied the brains and tormented the ambitions of uncounted generations of inventors. But complete success is almost here.



READY FOR A START—AN EXCELLENT VIEW OF THE MECHANISM



THE GREAT CRAFT EMERGING FROM ITS HABITATION

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FROM GOLDEN GATE TO HELL GATE

By L. L. Whitman



San Francisco, Cal., Aug. 1.—We start to-day from San Francisco on our motor-car journey across the Continent. I made the Oldsmobile run last year and have been unfortunate enough to engage for another over practically the same route, viz.: Across the Sierra Nevadas, Placerville to Carson City, thence over the deserts, 600 miles to Ogden, then along the Union Pacific Railroad, through the Rocky Mountains in Wyoming to Denver, thence to Omaha, Chicago, etc. The car I have equipped for this trip is the 4-cylinder Franklin, and the only change we made was putting in another larger gasoline tank of 15-gallons' capacity. We have some 200 pounds of baggage, and even then we have tried to economize as much as possible. This baggage consists of one extra tire, three inner tubes, a camera, tools, extra spark plugs, some small extra parts for replacement, some chain, clothing, and last but not least, a canteen for water and an axe. You will find that you will need them in your business when you get out into the wilderness. We have a large hamper on the rear deck, and it is jammed full. My companion is C. S. Carris, of Syracuse, N. Y., 27 years old, who has yet to learn the pleasure of motoring between 'Frisco and Denver. The president of the Automobile Club of California, learning of our departure, gave us a letter to deliver to President Scarritt of the Automobile Club of America.



AT CRYSTAL LAKE, CALIFORNIA



THROUGH THE SIERRA NEVADAS

Battle Mountain, Nev., Aug. 7.—Six days from 'Frisco. We have hit the trail good and hard, making remarkable progress and no trouble with machine. While she grunts and snorts and flounders around in the sand drifts, we have not been troubled with hot cylinders. Over the mountains we reached an elevation of over 7,000 feet, snow lay around us on the higher peaks, and snow-fed mountain streams dashed alongside our road. From these enchanting days in the mountains we plunged on the dreaded deserts. The sun blazes its scorching heat over the wastes of sand; the alkali lakes are dried up, and over their parched surfaces we whirl up clouds of dust. In the deep sand we rope the wheels, and more than once we have taken the shovel and dug out the machine. The axe, too, is used on the brush and ridges. We are already burned as black as the Indians, who look at our "Red Devil" with awe. Once we had to take the railroad tracks, and bumped over the railroad ties to get by sand hills. We spent this forenoon in 28 miles of sand near Winnemucca; this afternoon made 62 miles from there to this place. We left Golconda at 5:10 P. M. The people at this place said we were fools to strike out for Battle Mountain at that time of night, as it was 45 miles; said we would pass the night in the sage brush somewhere between these places, as there is not a stopping place or inhabitant over this distance. There is one watertank on the railroad. We made the run and got in here before dark. Every mile was through continuous sage brush as far as the eye could see. In fact, we felt rather chesty as we flew into the little desert town of saloons. As it was Sunday, most of the inhabitants were celebrating by getting drunk.

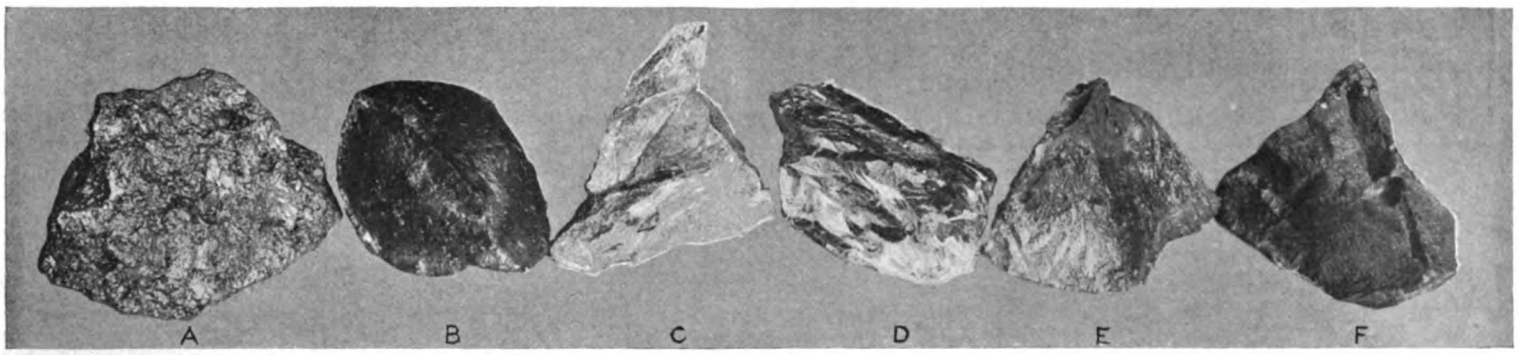


ALONG A MOUNTAIN ROAD

Ogden, Utah, Aug. 11.—You can understand we have hit the desert good and hard when I tell you we have been just ten days from San Francisco—best that has been done on these cussed sands and sagebrush wastes. We have had to dig out the machine and back up off stumps and rocks, let her down carefully into deep washes, and rush her up steep banks, plough weary miles of sand, and let out the vehicle at a 30-mile clip on some of the alkali lakes. The sun just bakes the whole country to a crisp. We made 137 miles from Terrace yesterday, and the streak of alkali dust must be still unsettled along old Salt Lake. We looked as though we had been powdered in flour, and one inch of dust lay on the rear of our car. We shall clean up the machine, look to the bearings, and hit her up from Denver to-morrow.

Denver, Colo., Aug. 17.—Arrived here at 11 A. M. to-day, 16½ days from San Francisco—13½ days better than the best previous record ever made. A broken chain and two punctures were our chief troubles from Ogden. We were lost several times, and had profuse rain and mud in Wyoming. Start for Omaha to-morrow.

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PURE METALS AND ALLOYS REDUCED FROM THERMIT

A - Manganese Bronze B - Molybdenum C - Chromium Manganin D—Chromium E—Nickel-tungsten F—Ferro-manganese

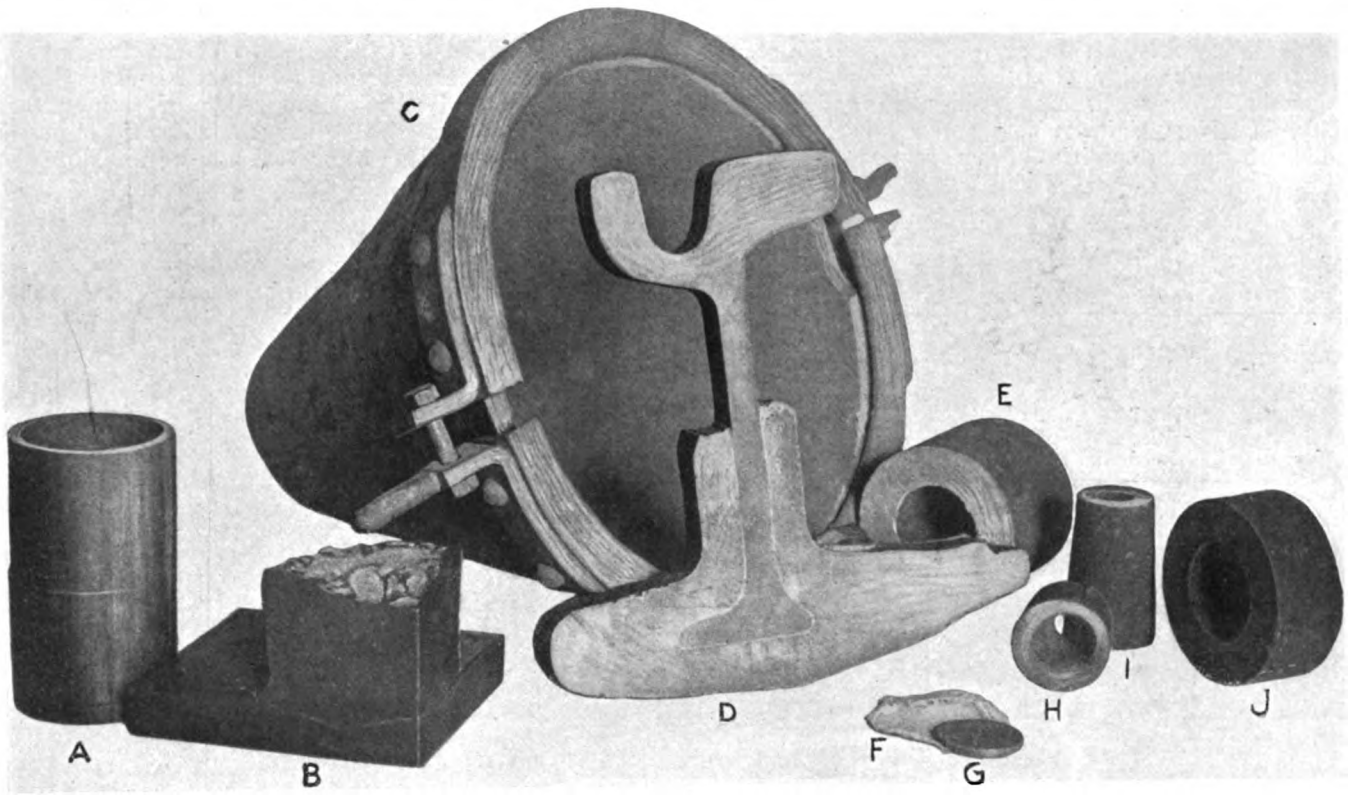
A FORGE AND A FOUNDRY IN THE TOOLBOX

By Victor Lougheed

Thermit, as its inventor, Dr. Hans Goldschmidt, has named it, is the newest marvel in metallurgy, and, befittingly, hails from the ancient city of Essen-Ruhr, Germany, where are located the famous works of Krupp, the steelmaker, and whence for many years have come great quantities of all things fashioned of iron and steel, from rifled cannon and armor plate to an excellent modern make of motor car.

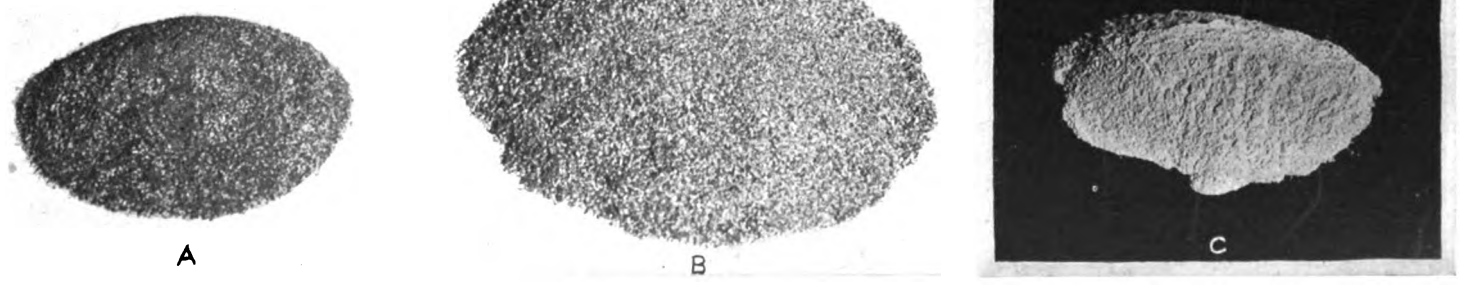
In these days of material progress and scientific wonders, it is not often that a new invention or process succeeds in taking the industrial world by storm. New things of obvious merit, even, require to be diligently promoted and popularized before cold commercialism can see the good in them, and it is only the novelty of an epoch that is accepted without hesitation or question. But thermit is so clearly epoch-making in its particular field that the fact of its existence needs but to be known for the fact of its merit to be conceded; and, indeed, it already has been proved to be pregnant with possibilities in almost every industry and business to which the sturdy handicraft of Vulcan and Tubal Cain directly or indirectly applies.

(CONTINUED ON PAGE 54.)



SOME IMPLEMENTS AND SOME SPECIMENS OF THERMIT WELDING AND CASTING

A—Pipe, Showing Weld B—Lug Welded to Plate C—Magnesia-Lined Crucible D—A Rail Weld E, H, I, J—Magnesia Stones for Stoppering Crucibles F, G. Asbestos Cloth and Iron Coin for Crucible Bottom



THERMIT THE NEW WONDER IN METALLURGY

A—Nickel Thermit B Iron Thermit C—Ignition Powder

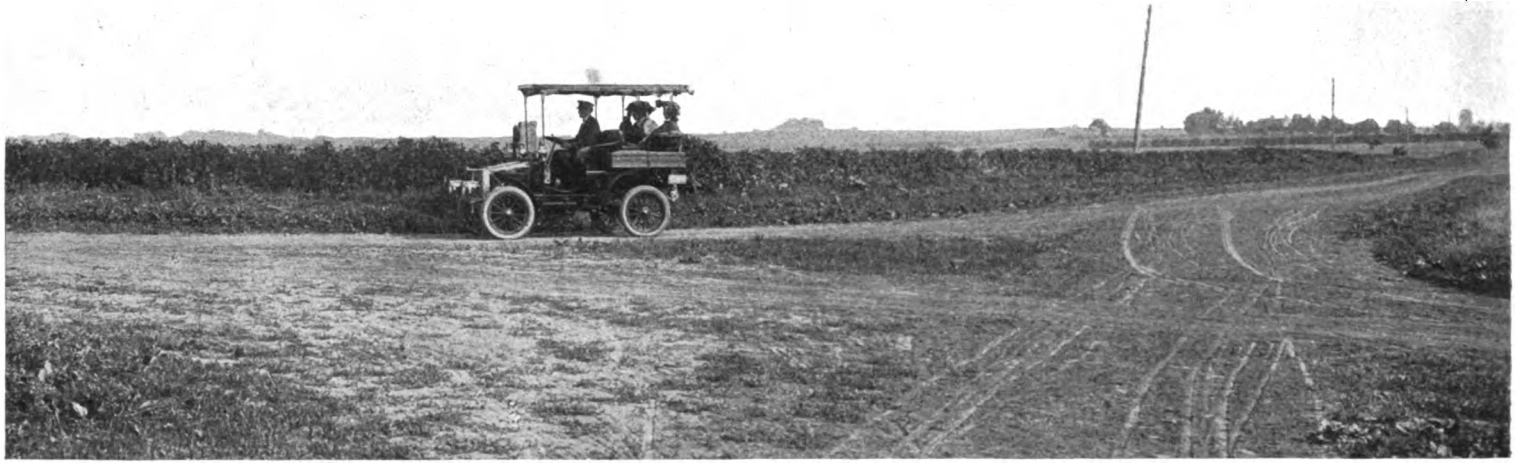
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MOTORING ON THE PRAIRIES

By Robert Bruce

Both the Atlantic and Pacific coasts of the United States have been the subject of numerous stories of motoring trips, and the same is true of the best-known valleys east and west, and of the lakesides. But seldom is the prairie country, comprising fully one-third of the American continent, mentioned in the same breath, either for picturesqueness or touring possibilities. True, the stern grandeur of the New England coast and the adamant hardness of the Florida beaches—unequalled for record-breaking tournaments—and the shores of the Pacific are attractive as anything could be, in their appropriate seasons. But the prairies have attractions entirely and distinctively their own, which do not suffer in a point-and-point comparison with the best that the rest of the country can afford.

This vast section, a thousand miles long and more than a thousand miles broad, is filled to overflowing with smiling fields, dark-wooded hollows, and grass-topped crests of hills covered with nodding green plumage. The wildness of the primeval prairies and the cozy homeliness of cultivated farms, long strips of level road bathed in sunshine and shadow, dips and rises that are cloaked with the green of trees or lie in the glorious rays of the sun, a fresh world of grass and flowers—such a kaleidoscope of natural beauty, to the average tourist, would in all probability appear to him to be a vision of paradise. Yet this is everywhere on the prairies. It is to be seen in almost every direction within a radius of fifty or a hundred miles from Omaha, Minneapolis, Des Moines, Springfield, Ill., Kansas City, Topeka, Oklahoma City and a hundred other cities and towns that dot the prairies of our great Middle West.



AT THE CROSSROADS, WHERE THE ACRES OF PRAIRIE ARE APPRECIATED

Of course there are motorists who sigh only for the long, smooth asphalt boulevards of the coast and lakeside cities, or for the level stretches of road about the eastern foothills of the Rocky Mountains. Probably they have gone into raptures at the sight of the natural boulevards of the Florida or Southern California coasts. Perhaps they do not know the full meaning of the western country road; they may never have breathed the ozone of Nebraska's country air, or taken "on the wing" the beauties of the Kansas prairies. They may never have climbed a long, gentle upgrade and then halted at the crest to gaze out for miles over laughing hills and vales while the Oklahoma breezes raised in their souls an ecstasy of praise never felt within cathedral walls.



A STOP OF THE WHITE 'STEAMER" FOR PICTURE TAKING

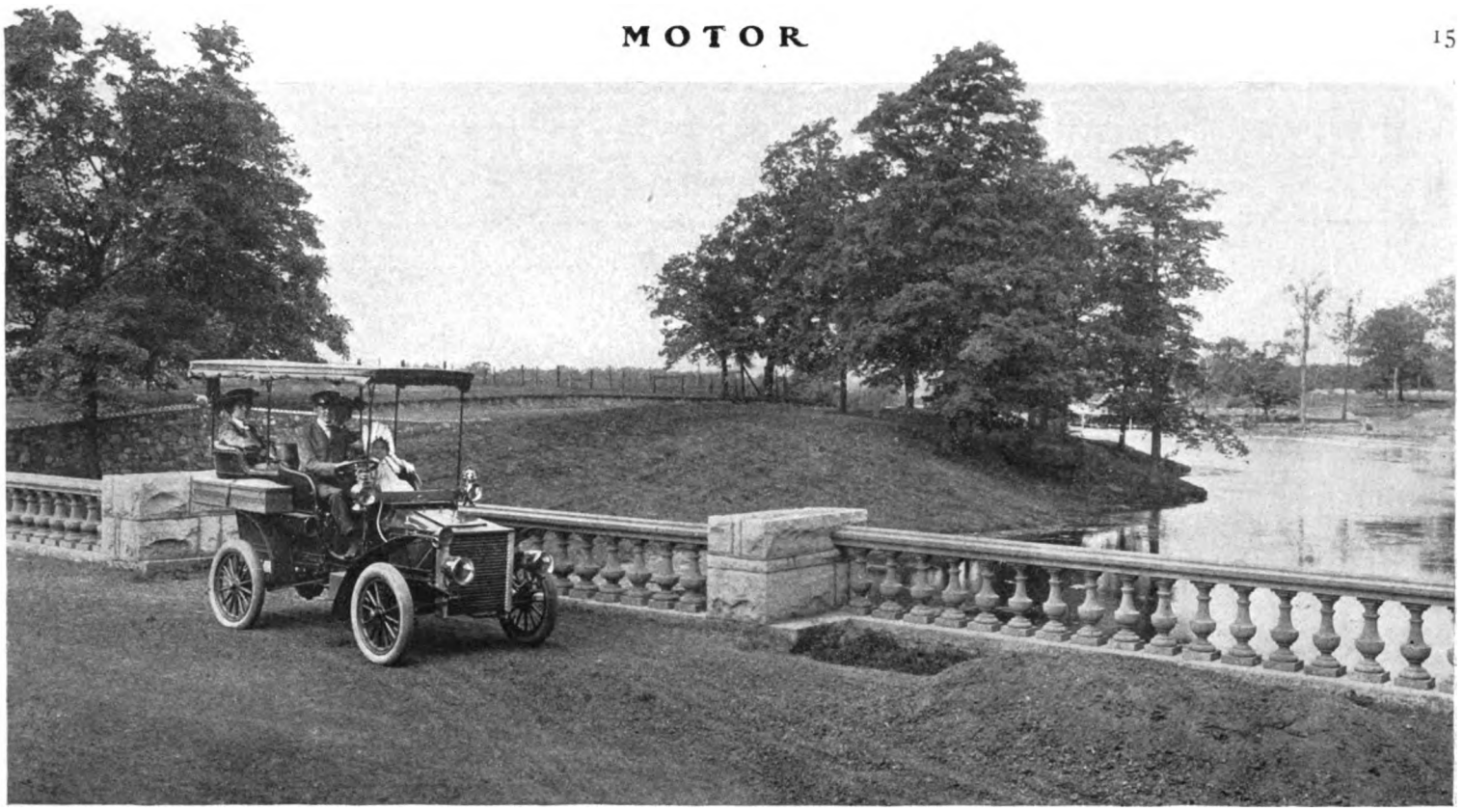
Contrary to the expectations of many people, there *are* hills on the prairies. In fact, many of them are fairly steep and none too easily climbed, but then there are the down grades and the level stretches between them. There are bad, sandy and dusty roads particularly, but then again there are roads as hard and smooth as ballroom floors. The objections noted are likely to be found on any run of considerable length from any of the cities named, but they are fully counterbalanced by the thousands of beauties that abound.

In these great central States of America millions of acres have been turned into fertile fields and blossoming gardens within the easy memory of men now living. An infinite freshness is over all. From mid-April until about the first of July, the hot sun forces everything; then there is an indescribable softening of the year as it gets to harvest time. A month or two later there is a conscious slowing of the pulse, and a warming of color that creeps over the landscape. Leaves drop quietly and carpet all the roads. A boyish wish comes back to you to roll a pile of brown, crisp leaves into a sunny nook and lie down in a heap as animals do. The heat is at times intense, but it wraps you up warmingly to nature's heart. Above all, you are conscious of a universal sweetness—it is of the beech leaves, perhaps, or of maples or lindens, of corn and aftermath. The turning of wheels in the distance now sounds nearer. There is a new neighborliness in all the world. Have you noticed that strangers you meet on the road smile at this time of the year, like friends? Even tramps touch their hats.

From early June until the middle of July at least, thrilling scenes are enacted in the harvest fields of the prairies, in full sight of the tourists who use the roads. The hum of the binder is heard on every hand. Men hurry into the fields at sun-up and are reluctant to quit at dusk. A cold dinner is eaten while the binders are still going. The horses are fed as they walk around the fields, and water is handed to the men on the "go." Mechanical experts drive around the binders, and everything but a serious breakdown is repaired on the spot in a few minutes. In a single field where there are many binders at work the harvesting is carried on with clock-like regularity.

All the great pastoral poets from Theocritus to Robert Burns would wonder if brought face to face with a very modern western farm. There is a particular example in mind where the owner has not only substituted new machinery for old, but has made a wide private thoroughfare among his various fields, and the following is a brief epitome of his operations: In the spring he breaks up the soil with a

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WHERE THE ARTIFICIAL BLENDS INTO THE SCENE WITHOUT DISTURBING ITS BEAUTY

steam plow, so that instead of the furrowed field and the peasant with his team, you must picture spring on that farm with a puffing steam engine manned by modern mechanics.

There is not a better pictorial phrase in existence than the Biblical one, "The sower went forth to sow"; and to most of us the words call up not only the ordinary illustration to the text, but also memories of the eastern farmer in springtime scattering his seed by hand. How different it must be to the children who grow up where even this task is performed by machinery! The old words cannot possibly convey the same meaning as they did to us; and in the course of a few more generations the most familiar of all books will not be comprehensive without a commentary. So many things in agriculture, after remaining practically at a standstill for 2,000 years or more, have suddenly begun to change in sympathy with the rest of the world.

The writer remembers having seen somewhere a picture showing in a marked manner the difference between a century ago and to-day in respect to these things. There were the woman with her sickle and the man with his scythe, as they might have been in the days of Boaz and Ruth, reapers and gleaners, and rough, ruddy faces of peasants eating a humble meal under the stocks, all rustic and antique as from some old master's painting. This is all ended on the farms of the great Middle West, which is probably a fair sample of what will be a general state of things ere the present century is a quarter gone. The contrast was a self-binder, cutting and tying the grain with mathematical precision, and a solitary figure, or perhaps two figures, following mechanically to set up the sheaves.

No doubt the old system owed something to the glamor of tradition and long association. The reaping-hook, the scythe and flail are so worked into our language that their very names suggest ideas with which self-binders, patent rakes, gasolene-driven plows and steam threshing machines refuse to be associated. Though in time, as they too get linked with memories

(CONTINUED ON PAGE 60.)



A LONG STRETCH OF HIGHWAY EXTENDS STRAIGHT AHEAD AS FAR AS THE EYE CAN SEE

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FROM THE VIEWPOINT OF THE PHYSICIAN

By F. C. Dildine, M. D.

The motor car has received, even in its comparatively early years, so much attention that little now remains to be said pro or con. But, like any live subject that is with us to stay, the great mass of arguments will bear repeating many times; and, therefore, the only excuse for this article is to help "hammer in" some accepted and important facts, with particular reference to the use of the motor-driven vehicle by physicians.

It is admitted on all sides that the motor car has come to stay, and is even now an important factor in the pleasure and the commercial worlds and making rapid strides forward. Such expressions as "the rich man's plaything" have become obsolete, and a good machine is well within the reach of anyone who can afford an outfit for driving purely for pleasure —and it is even cheaper considering the distances traveled and the very rapid depreciation of the value of a horse in use or out.

The matter of cost being disposed of as being approximately the same for like accommodations, the question arises What are the advantages of the motor car? Well, anyone who has done some riding will say it is the greatest of pastimes. It is exhilarating, and whatever is exhilarating is conducive to a good body, mentally and physically. It is a clean, open air bath. A jaunt of a few miles is quite as invigorating as a dip into the ocean's brine, and no special locality is necessary. One has only the pure air and bright sunshine. The dust is always left behind. No doubt the motor car will prove a boon to invalids and chronic sufferers, especially those who need open air treatment. Long distances may be covered, and the individual has the benefit of the ever-changing scenery and also of going somewhere.

There is a fascination in a definite journey planned beforehand that is not experienced by simply driving out and back a few miles, as with a horse. This is true of all kinds of enjoyments. A sail to some resort or place that may be varied, is immensely more enjoyable than simply sailing up the bay and back, when you are obliged to do the same journey again if the pleasure is prolonged. Then, too, by this method of travel the natural enemy of man—close, stuffy cars—are avoided. For the busy man and the invalid alike, nothing can compare with a pleasant, rapid ride over a well selected route, of fifteen to sixty miles, replete with natural scenery or historic interest.

The motor car is sanitary. The worst charge that can be brought against a thing is that it is unsanitary. A few drops of machine oil never added to the misery of any one. The idea of sanitation does not appeal so strongly in the country as in the city, but it is a factor that is not to be despised.

The motor car is safe. Hundreds of people are killed and maimed for life by the horse, "the friend of man." But we have been educated to the subject, just as we have to the fact that all mules will kick—and expect it. Reports of accidents to motor cars are overdrawn, and a horse is mixed up in the affair in nine cases out of ten. While a runaway is always attributed to something besides the horse, the motor car has no will and no sense, and is the complete servant of the operator. Examine carefully any number of reported motor car accidents and see how few were really due to some fault of the machine.

The motor car is humane. It never tires and never perspires. One need not worry and feel uncomfortable about the "poor beast" while enjoying a twenty-mile breeze on a sultry day. We have profound respect for it, but no sympathy, and it needs none.

For the physician with a riding practice, the motor car is well-nigh indispensable in these days of hurry and competition. He can do more business, and do it better. Any physician who has no time to bother with one, is like the man who does not take any (or many) medical journals because he has no time to read them. The physician who has no motor car has time to "bother" with it. It will save him weeks of time in a year, and every trip is an excursion in the new fashion with the old-fashioned joys. My Buckmobile has earned its price many times over. The motor car is not only a means by which the physician may make his calls in quicker time; it is also a means by which he may start upon them more promptly. If a hurry call comes into a physician's office, it is of the utmost importance for him to be off at once. The time necessary to harness a horse may be time enough for a patient to die; thus the new conveyance may be a very direct means of saving lives. In fact, I venture to say that the use of the motor car by a very small percentage of the physicians in a given city would save their time and expedite their work to an extent more than sufficient to compensate for the rare deaths that it is claimed the general introduction of the new means of transportation might occasion.

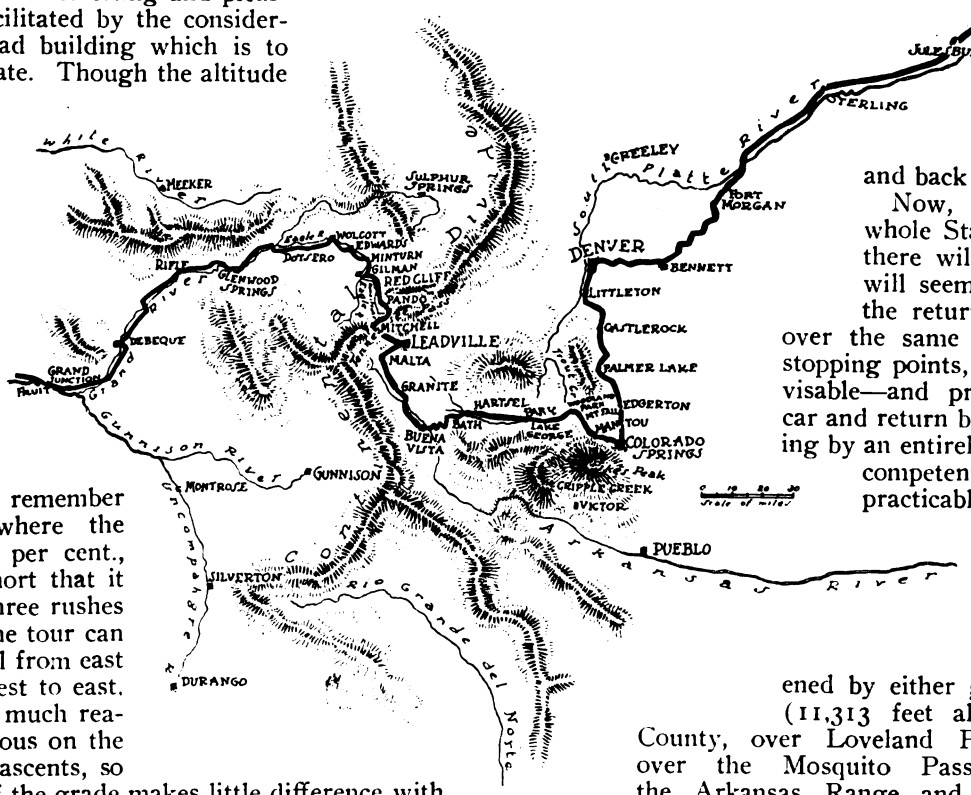


DR. F. C. DILDINE, A PORT JEFFERSON, L. I., PHYSICIAN WHO BELIEVES IN THE WORTH OF THE MOTOR CAR

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This is the season when motoring in Colorado is delightful. The rains, common in July and August, have ceased. With dry weather and a suitable car, a trip clear across the State can be made in six days, but there is more pleasure in taking two weeks or more. The trip is interesting and pleasant and greatly facilitated by the considerable amount of road building which is to the credit of the State. Though the altitude varies from 3,560 feet at the eastern border to over 10,000 feet at the Continental Divide and drops back to about 4,500 feet at the Utah line, the car can generally follow the "water grade" near enough to avoid long and steep climbs. I don't remember more than one where the grade exceeded 23 per cent., and that was so short that it could be taken in three rushes from standstill. The tour can be made just as well from east to west as from west to east, as there is quite as much reason for being cautious on the descents as on the ascents, so that the direction of the grade makes little difference with a car of abundant power.



If the trip is made for pleasure, the stops will be decided, anyway, more by what there is to see and enjoy than by the distance of each day's travel, and it is one of the fascinating features of motoring that you can add thirty to forty miles to whatever moderate day's journey you may have planned without overworking either yourself or your means of conveyance, even in a mountainous country—provided the roads are not soaked with rain.

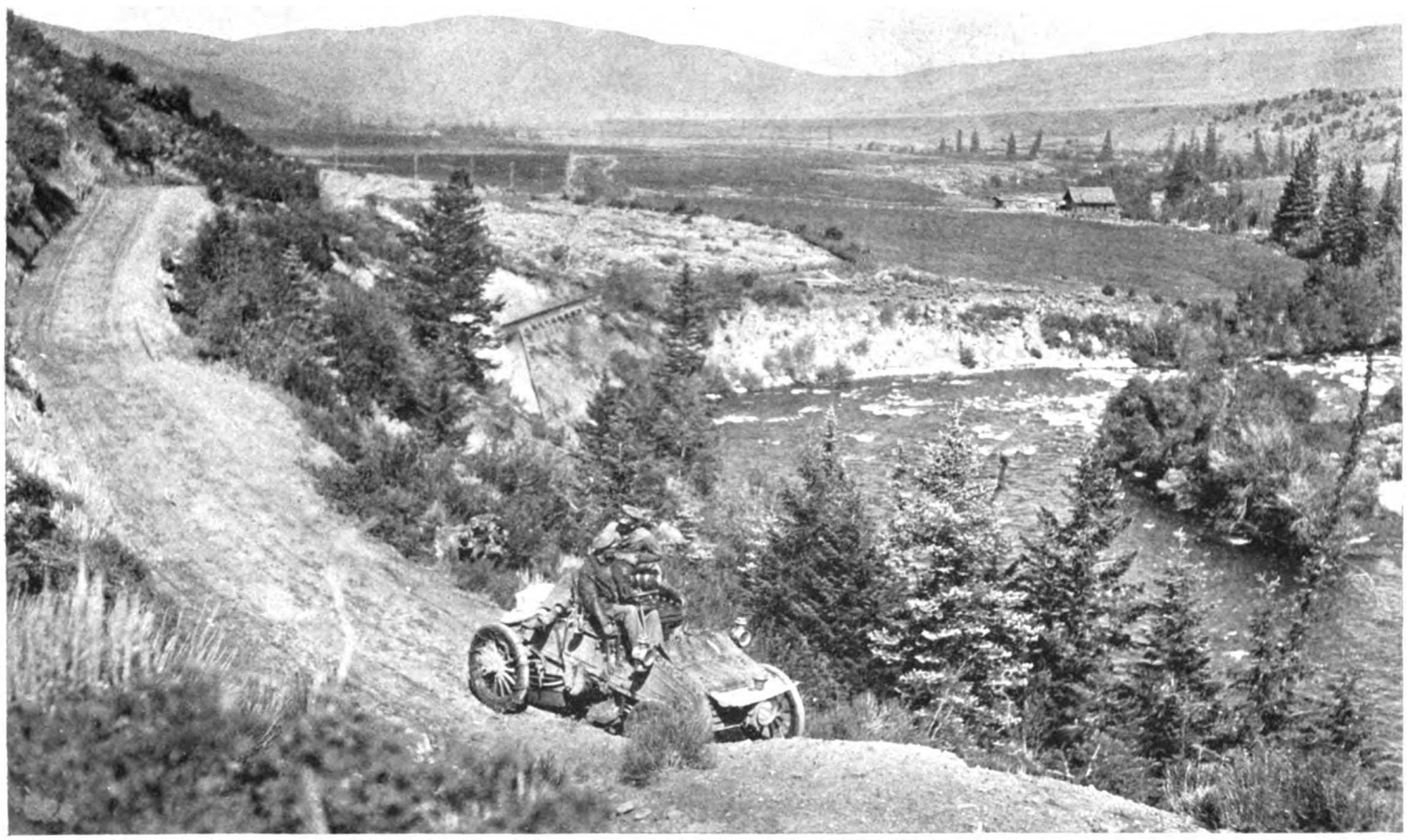
An itinerary from east to west which I should consider quite practicable, would be about as follows: 1, from Julesburg to Fort Morgan; 2, Fort Morgan to Denver; 3 and 4, excursions from Denver; 5, Denver to Manitou, with stops at Castlerock, Palmer Lake, and Colorado Springs; 6, excursions in vicinity of Manitou; 7, Manitou to Buena Vista; 8, Buena Vista to Twin Lakes (only a morning's jaunt), thence in the afternoon to Leadville; 9, Leadville to Glenwood Springs; 10, day at Glenwood Springs, with an evening run to Rifle; 11 and 12, excursion into the Meeker section and back; 13, Rifle to boundary of Utah and back to Grand Junction.

Now, having been through the whole State, it can hardly fail that there will be several places which will seem worth visiting again; so the return trip may well be made over the same route, but with different stopping points, unless it should seem advisable—and prove possible—to sell the car and return by railroad. As for returning by an entirely different route, I am not competent to say that it is or is not practicable, having followed only the one here described—and without the excursions referred to. The distance from Leadville to Denver may be much shortened by either going over Fremont Pass (11,313 feet altitude) through Summit County, over Loveland Pass to Georgetown, or over the Mosquito Pass (13,188 altitude) of the Arkansas Range and through Park and Jefferson counties; and neither of these routes, according to local information, will present greater difficulties than have been overcome in Utah and Nevada, excepting that the altitudes bring snow within the possibilities in the fall months. If one proposes to leave the roads that have been improved by the State, it may be necessary to have a car with more than ordinary clearance between the machinery and the ground and flexible enough to cross a ditch or ravine, but so far as the main route is concerned, which is shown on the accompanying map, the only special requirement is that the car should not be unusually long. A comparatively short car is much safer and more convenient at the many sharp turns of narrow shelf roads. For a party of



AT GRAND JUNCTION—CENTER OF GRAND RIVER FRUIT BELT

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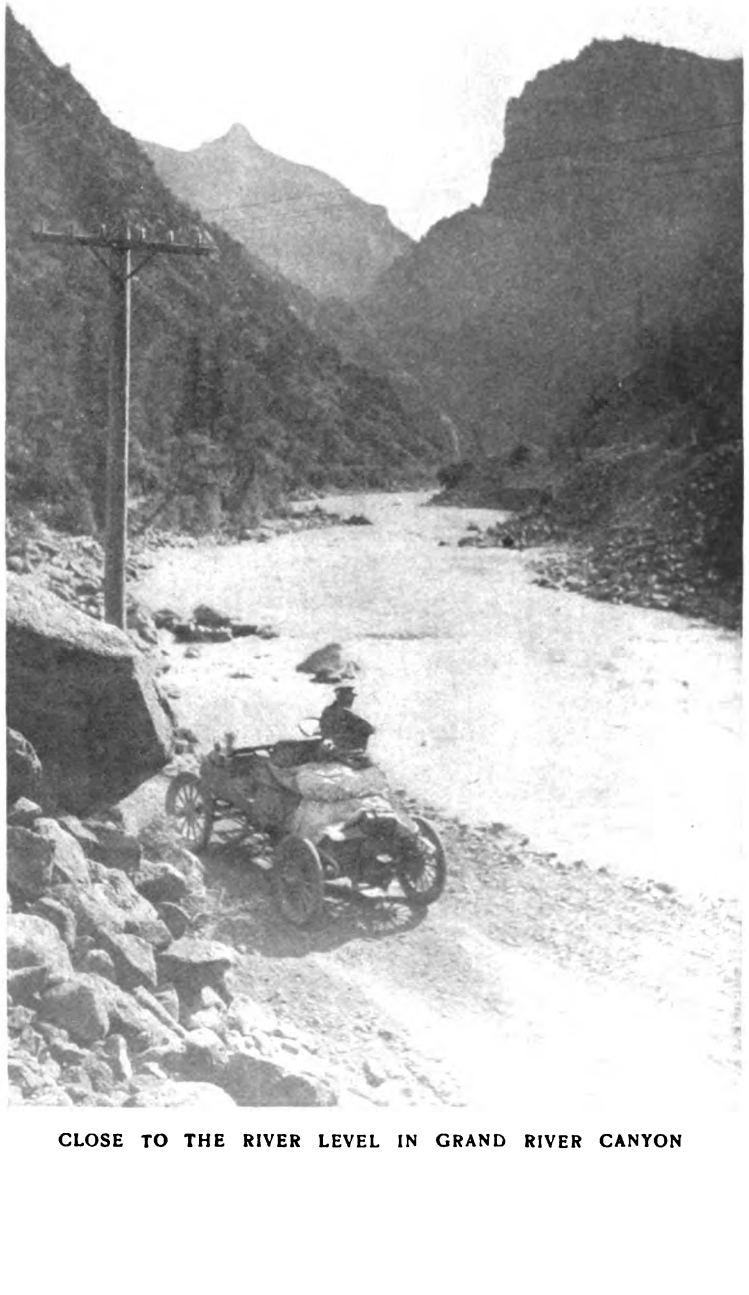


ON A SHELF ROAD IN THE CATTLE RANCH SECTION ALONG EAGLE RIVER
Photo taken during the 1903 Packard Transcontinental Trip.

four or more persons two small vehicles would probably serve much better than one large one—and they would be much more saleable at the western end of the tour, where my story begins.

At the boundary of Utah nothing relieves the desert landscape, with its interminable expanse of sand and sagebrush, except a far view of the Book Cliffs to the northwest, guarding the paradise to which Utes, Piutes, and Uncompahgres trek in the hunting season from the San Juan country farther south.

The road is an indistinct trail that twists desperately around to avoid the steep places in the innumerable ravines. After a few miles, however, the bluffs of the Grand River heave in sight, the road winds onto a stony ledge from which the river itself, rough and rapid, is visible, and hence the route follows the "canyon," an irregular river valley which is now on this side and now on the other side of the stream, now a mere gorge between rock cliffs and again a considerable expanse of tillable land. This was for us the introduction to civilization after a long and tedious navigation of the southeastern desert of Utah. Soon the little village of Fruita proclaimed, by its name and its orchards, that we had entered an agricultural section devoted almost exclusively to fruit culture and dairying. Though barely one dozen years old the settlement appeared prosperous, thanks to the irrigating waters of the Grand. In the center of this settlement lies Grand Junction, already a town of some pretensions, where a very respectable brass band every Saturday evening plays to a delighted audience from a platform placed on barrels at the intersection of the two main streets, according to a well-established western custom, which affords an excellent opportunity for meeting anybody in the town that one may wish to see; for they are all there, around the music.



CLOSE TO THE RIVER LEVEL IN GRAND RIVER CANYON

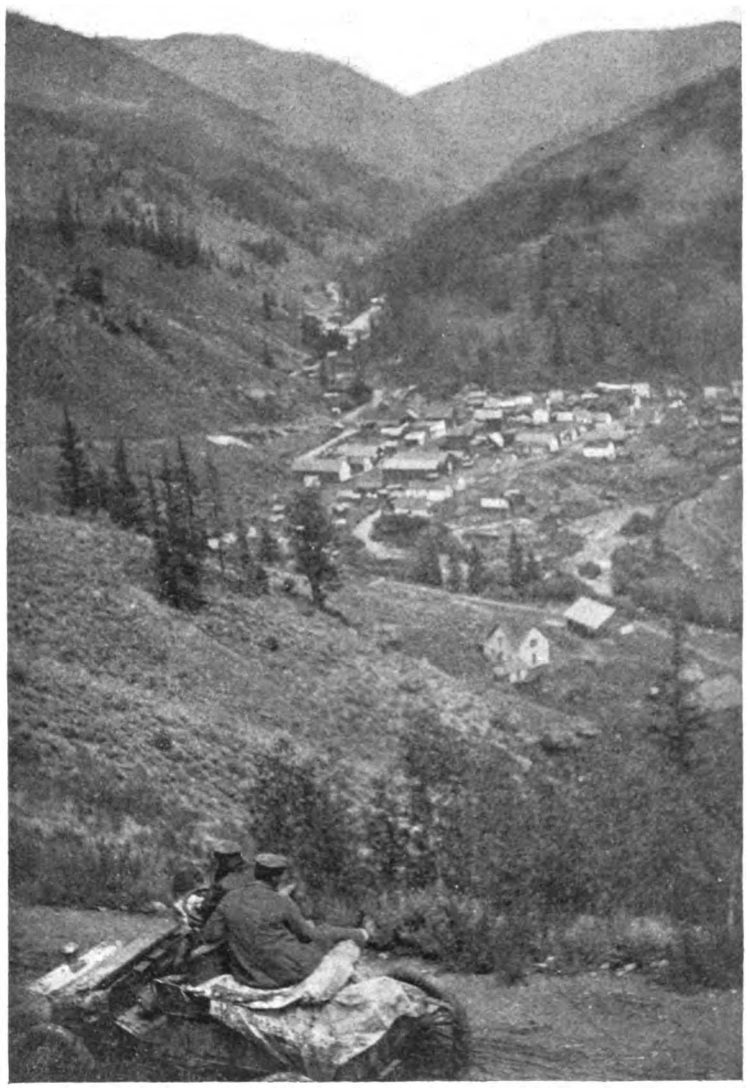
The drive from Grand Junction to Palisade is a promenade through alleys of peach, cherry, apricot, apple, and plum trees. The broad, somewhat sandy road is lined with houses and orchards, not as close together or as luxuriant as in Southern California, but proving clearly, nevertheless, that the altitude—4,500 to 5,000 feet—is no serious obstacle to fruit culture in this section, far removed as it is from large bodies of water and the killing frosts that go with much humidity in the atmosphere.

Farther on the valley contracts and the adjacent country roughens. The road to Debeque, 21 miles by the railroad, is about 35 miles

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by the Hogback Canyon route, which makes a great winding detour around the river bluffs, finally turning into them and approaching the town through a riotous agglomeration of weird formations that lend strong color to the stories of the most recent desperado hunt which took place in this region. Better fastnesses for outlaws within gunshot of a peaceable community could not easily be imagined. From Debeque to Parachute and Rifle there is a choice between two roads, one south and the other north of the river. We found the southern one very hilly, almost billowy, running pell-mell from ranch to ranch over the hogback spurs shooting into the river valley from the bluffy upland. But the road surface was not bad. Looking for improvement, however, we crossed the river at Parachute and tried the north side from there on. It was plainly the main road of the two. The cyclometer showed 79 miles from Grand Junction when a thunder shower surprised us at the top of a long, clayey, shelf road descent to the valley, compelling us to place chains around the rear tires, so that we would not slip off the road.

Six miles farther advanced, we rolled up before Clark's Hotel at Rifle. A stage road runs from Rifle



A BIRDSEYE VIEW OF RED CLIFF

to Meeker, which is the center and the only town of any importance in this aboriginal and railroad-less portion of Colorado. From all information given at Rifle, it should afford a most acceptable digression from the main route, especially with a couple of saddle ponies, on a long lead, in reserve and the necessary guns. The ponies would probably have no difficulty in following any pace of which the car would be capable in this section, at least for one or two days.

Between Rifle and Glenwood Springs the landscape and the road bring to mind the picturesque sections of the Mohawk Valley in New York, such as the vicinity of Little Falls. The angles of the hills are a little sharper, the river is a little more tortuous and yet also more rapid, the road rises and falls in bolder conformity with the natural surface and affords many quickly-changing vistas up through the valley, the air is more bracing and the rocks have more color, but there is less singing of birds and less timber. One feature entirely absent in the Mohawk Valley and here constantly thrust upon the eye is the ubiquitous wood flumes carrying water from the river to the fields. They run under the road and over the road and through



GRAND RIVER CANYON ABOVE GLENWOOD SPRINGS—EMERGING FROM THE SHADOW OF THE CLIFFS INTO THE SUNLIGHT

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HON. EDWARD T. TAYLOR
Father of Colorado Road System

the air on long trestles, and they are strung along vertical rock walls where the road has been blasted out of the bluffs, until one wonders how so much work was ever undertaken and accomplished in a thinly-populated valley and in advance of its development. The markets of nearly all mining regions and the traffic in water rights explain the wonder, upon second thought; but probably nothing would convince an Easterner as thoroughly as a motoring tour through the West of the intimate connection there must always be between irrigation and prosperity for practically the entire country from California to the Missouri River. More wealth lies in the snow on top of the mountains, and trickles down their sides in the spring and summer, than is buried underneath in precious metals. Occasionally the motorist, however, finds it quite inconvenient to extricate his conveyance from the mire caused by an overflowing ditch; and they will overflow now and then, despite the heavy fines meted out to those guilty of negligence in this respect.

Glenwood Springs is the home of the man to whose efforts it is mainly due that a motor car can be driven from one end of Colorado to the other. More distinctly than others this man, State Senator Edward T. Taylor, realized that the upbuilding of western Colorado depended upon the establishment of a highway by which the yearly contingent of farmers and homebuilders who emigrate westward from the Eastern and Middle States could reach the territory with their wagons, implements, household furniture, and teams. Up to 1901 no such highway was in existence, and the greater percentage of immigration was deflected to the old transcontinental trail leading through Wyoming and to the other States north and northwest of Colorado. After setting forth this condition in a letter to the press six or seven years ago and gaining its moral support, Senator Taylor looked around for the available financial means as well as for the most feasible route. It required many speeches in various localities and much agitation in the Legislature to keep public interest in the project keyed up to the pitch of action. The means were found in the "internal improvement funds" which had before been applied illegally to the various State institutions. A test case was carried to the Supreme Court and a decision was obtained according to which they were applicable mainly to bridge and road work of benefit to the State at large, and beyond the means of the local community.

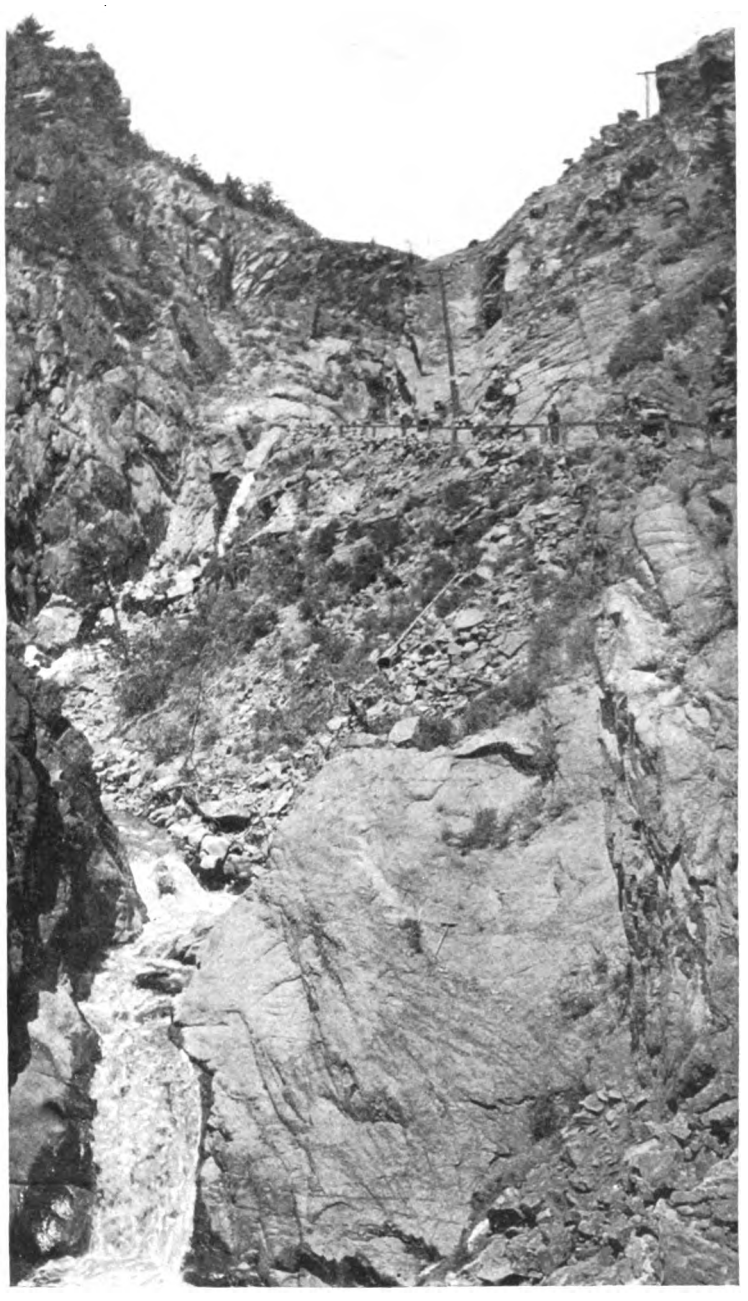
The twelfth general assembly of Colorado now did not hesitate to establish and locate the desired State road from Denver to Grand Junction, and appropriated the money from the funds mentioned. The construction work was placed in the hands of the State Engineer, Addison J. McCune, and in 1901 the work was completed in such manner as the limited means permitted, including the building of four steel bridges. The route selected went from Denver southwesterly through the South Park section to a point known as Bailey's Ranch, not far from Hartsel, and from here to Grand Junction coincided with the route described in this article.

In all of this Senator Taylor was the driving force to such an extent that the whole system is commonly designated, in Colorado, "Taylor's State Road." It is not yet by any means a magnificent, broad, ditched and drained thoroughfare, equally good summer or winter, rain or shine; but it is far better than two ruts with untutored Nature between them, and it is, in so far as possible, located along the southern exposure of the mountains so as to be freed from snow early in the spring and remain passable late in the fall, or even throughout the winter.

Motorists, least of all, will be inclined to quarrel with the fortunate combination of circumstances which enables them now to enjoy the delightful drive through the Grand River Canyon from Glenwood Springs to Dotsero, a distance of 20 miles of uninterrupted scenic charm, where formerly there existed not even an Indian trail on the north side of the stream, while the south side was completely monopolized by the Rio Grande railway track. It was on this stretch that the majority of the first State appropriation was expended. The work in some places resembles half tunnels cut along the side of the cliffs a few feet above the high-water mark of the river, and was done by letting workmen down with ropes and ladders from the top of the steep precipices, before the holes for blasting out the road space could be drilled.

Before we set out to enjoy and admire the unique scenery of the canyon drive, the attractions of the town claimed investigation, and no motorist taking this tour will probably devote less than one day to the same purpose. Hotel Colorado compares with the Ponce de Leon at St. Augustine and famous summer resort hotels, and has become very popular of late, boasting of several national celebrities as regular visitors every season. The immense open air swimming pool—300 or 400 feet long, I believe—coped with stone all around and fed with warm sulphur water directly from the smoking springs at one end, appeals strongly to a dusty traveler, especially as he finds by entering it that the raised fountain in the middle of it plays with cold ordinary H_2O from the mountain stream, in which the swimmer may find bracing variation from the 95 degrees F. of the main basin. And if he wishes the other extreme, he can descend into natural caves filled with sulphurous vapors which get hotter the farther he penetrates into the bowels of the earth. Excursions by pony and burro to the game

(CONTINUED ON PAGE 46.)

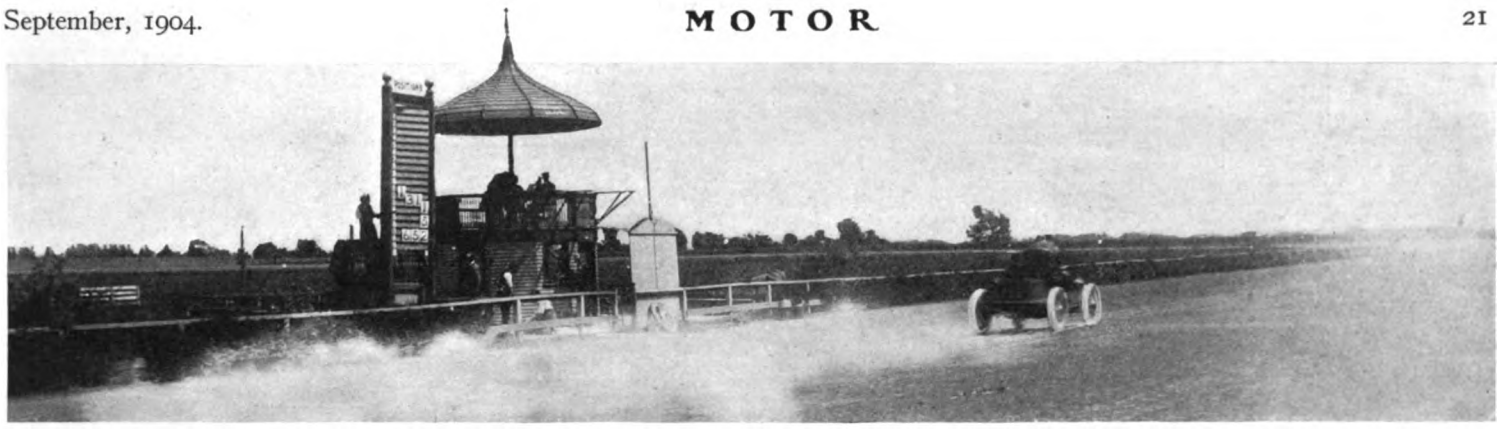


IN UTE PASS, CLOSE TO MANITOU



M. C. KRARUP

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SCHMIDT DRIVING THE PACKARD AT GROSSE POINTE TRACK IN ITS 1,000-MILE TRIAL

MORE DOINGS OF THE NON-STOPPERS

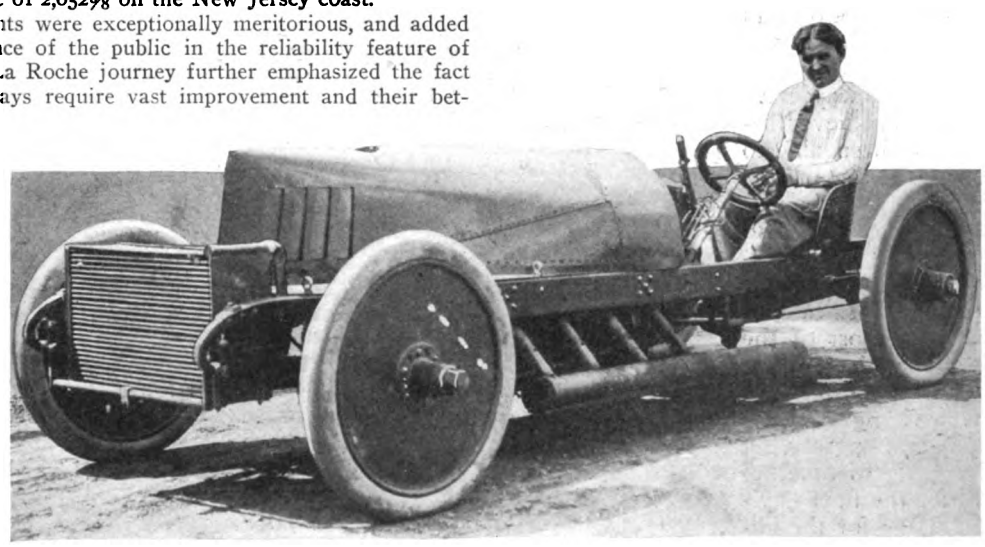
By Igniter

August was a prolific month for non-stop performers—La Roche completed his New York-St. Louis and return Darracq trip; Schmidt piloted a Packard car 1,000 miles on the Detroit track, and the Clément-Bayard obtained a mileage of 2,052⅜ on the New Jersey coast.

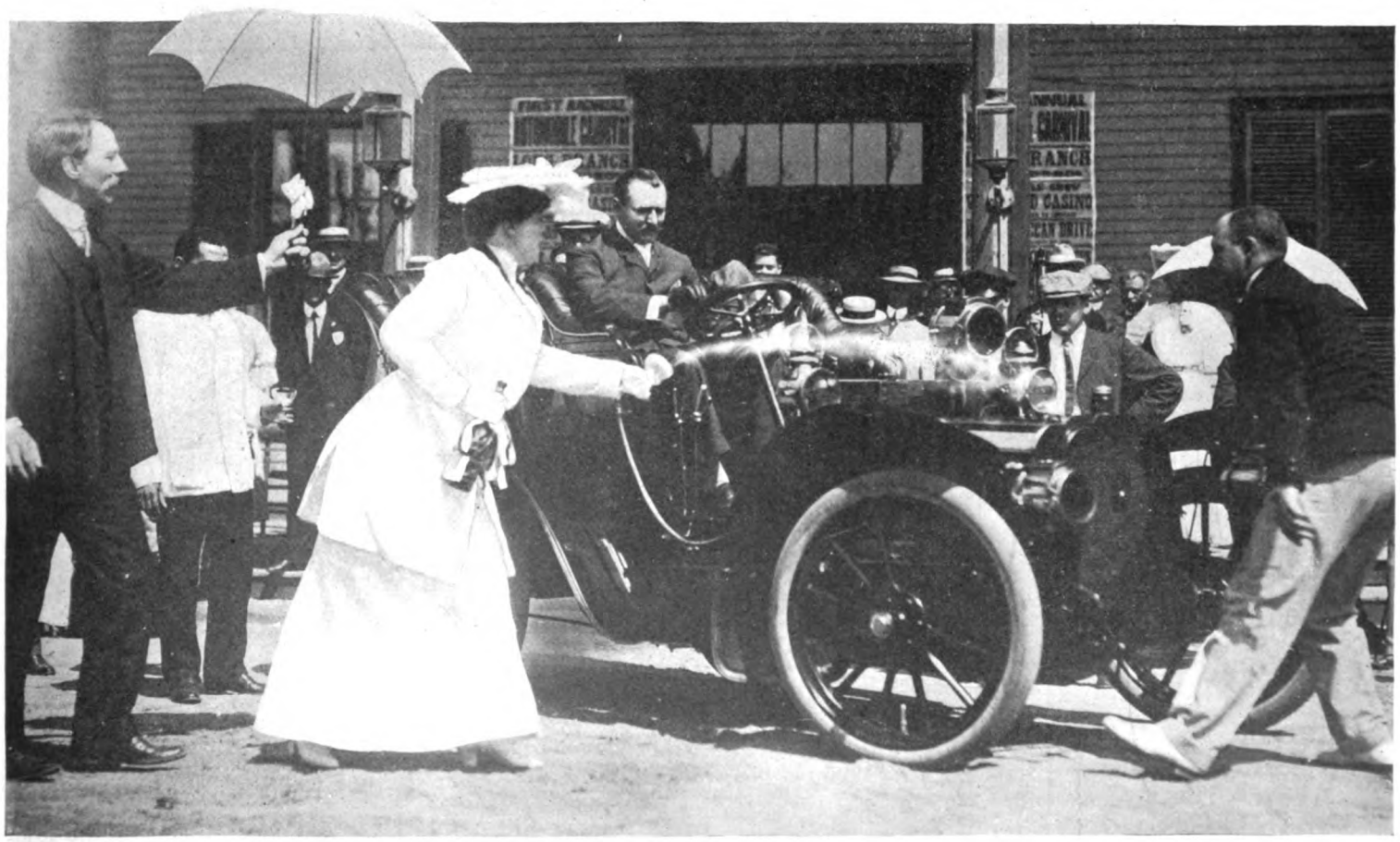
All three accomplishments were exceptionally meritorious, and added materially to the confidence of the public in the reliability feature of the motor vehicle. The La Roche journey further emphasized the fact that the American highways require vast improvement and their betterment must come speedily.

The point scored by Schmidt was in the direction of continued and consistent speed. The car began its 1,000 miles on Saturday, August 6, at 6.16 P. M., and concluded its run at 9 min. 37⅗ sec. after midnight on Sunday, the average being 33½ miles per hour.

When the Clément-Bayard on the morning of August 15 began its first trip over the 25-mile circuit between Long Branch and Spring Lake, it was with the intention of bettering the European mark of Weigel, who with a Clément-Talbot had covered 2,017 miles in England. Up and down the coast, day and night, the non-stop car proceeded, the greater part of the driving being done by Clovis Bertrand. In the conclusion of the run he had an inning of 27 hours at the wheel without relief. After covering 2,052⅜ miles in 113 hours, it was decided early Saturday morning in the midst of a very heavy rainstorm to consider it a task well enough performed. Once the engine did take an enforced and forgiveable stop in order to save the life of a little child who had strayed away from its guardian and gone out on the road. Bertrand's prompt and skilful action prevented what would have been a fatality. Sidney B. Bowman, the owner of the car, expressed himself as willing to have the public decide whether under the circumstances this stop should count as a mark of bad behavior for the car.



BARNEY OLDFIELD AND THE PEERLESS "GREEN DRAGON"



THE CLÉMENT-BAYARD RECEIVING AT THE HANDS OF MISS VIRGINIA HARNED ITS CHAMPAGNE BAPTISM

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By Augustus Post, Chairman A. A. A. Touring Committee

The New York to St. Louis tour of the American Automobile Association had a most successful ending. This tour marked an era in the history of the motor car that will long be remembered. It not only was the occasion for many cars to perform a wonderful feat, but of added importance was the transporting of association officers and members over one-half the United States, thereby extending their sphere of influence and personally bringing them in touch with affiliated clubs and in contact with the general public over a vast area of our country. It forebodes the time when the association will be true to its name, not only in its influence, but in actually marching from coast to coast.

Not only in an association way have great results been obtained, but never before have the manufacturers been able to exhibit the possibilities of their machines to better advantage. Not only as regards speed, but principally in the adherence to a prearranged schedule, although of a liberal nature; still, had the weather been less auspicious, it might have been less easy of accomplishment. As it was, most of the machines left at a reasonable time in the morning and averaged from fifteen to twenty miles an hour, arriving at their destinations with occupants possessing hearty appetites, and in plenty of time before dark to adjust cars for the next day's run, leaving the evenings free for the entertainment.

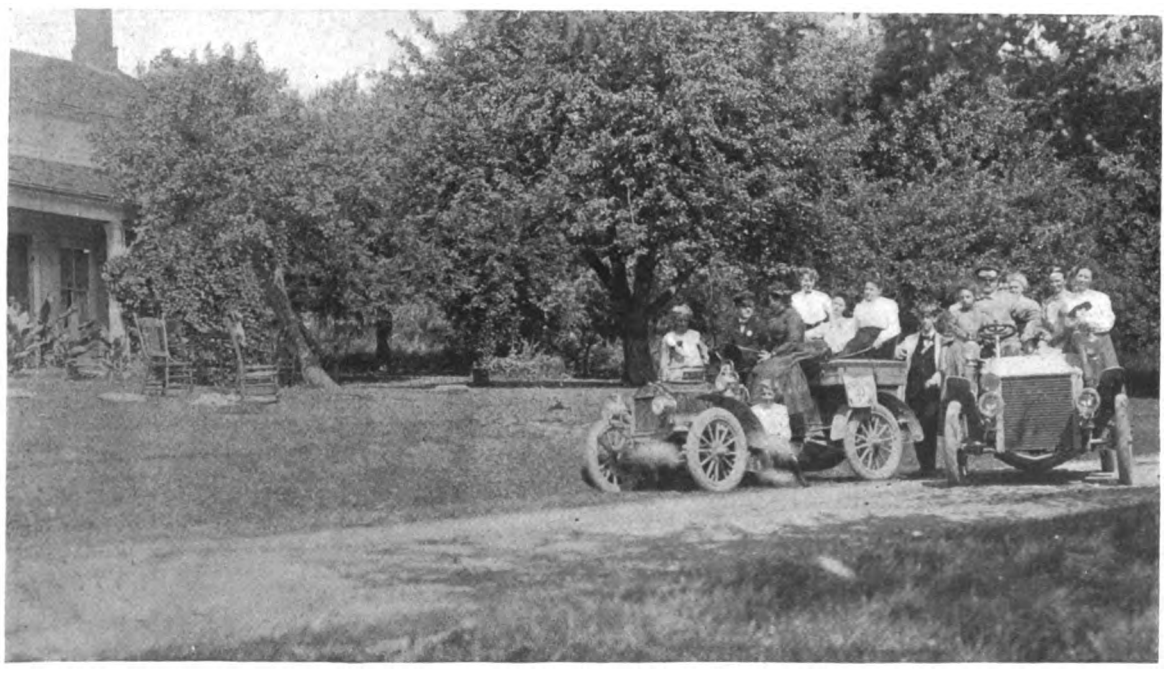
It even was found possible, where accommodations were not adequate, to accomplish a two-days' run in one instance without any serious inconvenience. It is hard to realize what it means to take a party of over 200 persons such a distance, approximately 1,500 miles, providing their own transportation, with uniformly satisfactory arrangements, and not a single serious accident or miscalculation of any importance. There came with the completion of this undertaking a sense of gratification rather than a sense of pleasure, which will remain longer in the memory and only be superseded by some greater achievement.

In looking back at the start from the Automobile Club in New York, July 25, with all the unknown conditions before us, the ride to Albany seems one of the shortest of the sections or divisions of our journey. Between Albany and Utica we all have a vivid memory of the wornout roads as compared to the beautiful sections of the State road, which we were all glad to note in our communication to the Governor of the Empire State, and it is not putting it too strong nor too mildly to say that in many sections the road was actually dangerous. From Utica



THE POPES ON BRYAN ROAD, SOMEWHERE IN OHIO

to Syracuse, the shortest day's run was in pleasant anticipation of the most delightful entertainment tendered to us by the Automobile Club of Syracuse and the Franklin Company. We felt wonderfully refreshed upón our leaving the next morning to conquer the dreaded Montezuma marshes between Syracuse and Rochester, which, under the generalship of H. W. Smith, proved to be merely a myth. We eluded the enemy by a circuitous route, and escaped this terrible experience that had been encountered in the former run through these parts to Buffalo. We all remember the fine gravel roads in Genesee County between Rochester and Buffalo. There the cars were let out as they were on the endurance run of last year. Nor could they be blamed for traveling fast after so many days of hard struggles through the terrible roads of New York State. Our Sunday in Buffalo was devoted to pleasure, and doing the trip to Niagara with its wonderful falls.



MRS. MURRAY, OF MACEDON, N. Y., GAVE A LAWN PARTY TO THE TOURISTS

The run to Erie was accomplished by most of the cars in the excellent time of four hours, and we were desirous of going on to Cleveland, which made it as hard to prevent the disintegration of the party as it was on the endurance run. Many stopped at the summer camp

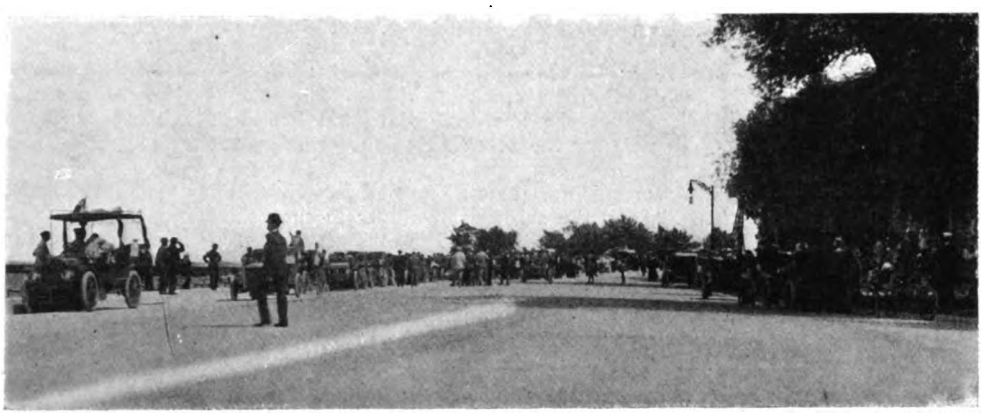
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of George N. Pierce and received the hospitality so kindly offered to many of the tourists. Indeed, so strong was the desire to continue, that the White brigade stole away at the stroke of midnight, to make a moonlight run to Cleveland, in order that they might arrange for the entertainment of the entire party that evening at a banquet given in the Hollenden Hotel.

Our party now consisted of thirty-five, including W. C. Temple, of Pittsburg. The Covert chainless, nicknamed the "Baby,' and the "Great Scott," which, like the turtle, had been crawling along well to the rear much like the turtle in the story of the tortoise and the hare, here caught up with the cavalcade. Cleveland added seven other cars from the automobile center of America, and with these additions the touring party consisted of more cars than were seen in the endurance run of last year. It now took on a character which was slightly different, commencing to grow to the importance of a triumphal procession rather than the run of a few cars only. The tour gained prominence from day to day, through added numbers, and rapidly came to be recognized as the greatest tour of motor cars ever conducted. The run from Cleveland to Toledo was much better than expected, and the day's journey consumed less time than any through New York State for a like distance. We were welcomed in Toledo both by the police and the populace, and if the warrants served had been correct, every member of the party would have been in jeopardy. The tourists were not surprised when the fake warrants were served on them, for most had struck en route either dogs, turkeys, or chickens, and had undoubtedly exceeded the law by many miles along the beautiful stretch leading into Toledo. While asking for proof of their having violated the laws, the tourists discovered that the summons was in reality an invitation to attend a banquet of the Toledo Automobile Club, through the courtesy of the Pope Company. Although imperative in its nature, the invitation or summons was faithfully complied with and every tourist was present for the good time provided at the Farms' dinner.



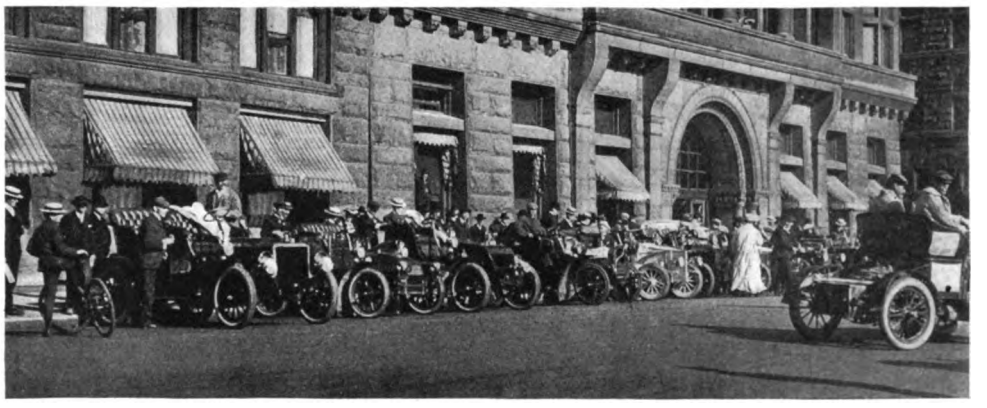
HERE THE CHICAGOANS ENTERTAINED THE TOURISTS LAVISHLY



THE TOURISTS ENJOYED JACKSON BOULEVARD IN CHICAGO

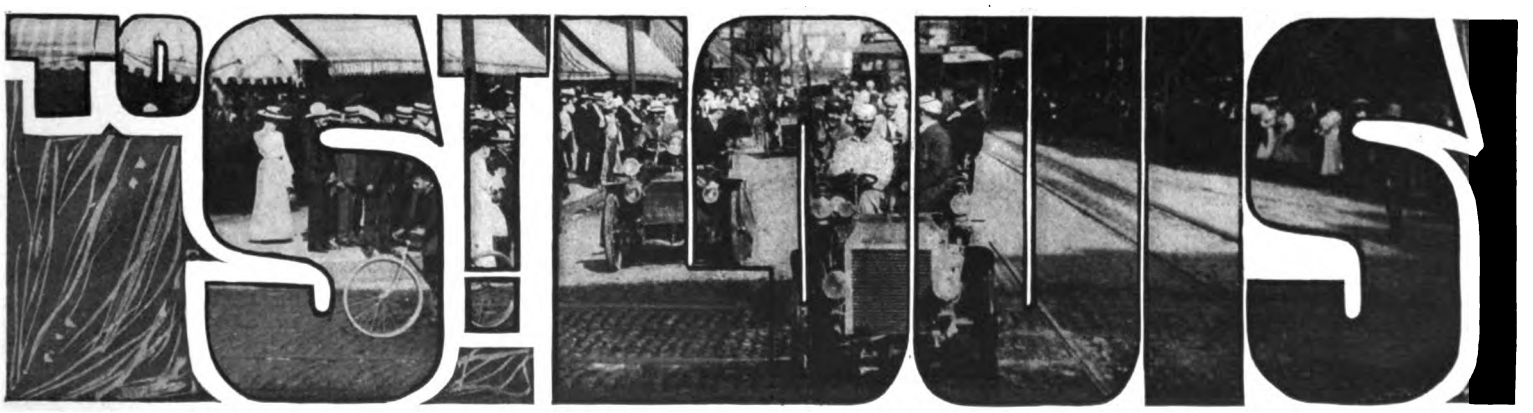
The following day was the hardest of the trip, 176 miles with only a break for dinner, and the tourists awoke with heavy eyes and started with little pleasure on their long jaunt. The lack of accommodations at Waterloo and the knowledge that the hotel in South Bend, the Oliver, was one of the best in the Middle West, induced the tourists to push along according to their special permit, and several made the run in the creditable time of between seven and eight hours.

At South Bend the tourists were met by the Chicago Automobile Club members who had journeyed south in fifteen cars to escort them to the shores of Lake Michigan. The roads from South Bend to Chicago were ideal, and, barring the lack of confetti, the trip was most enjoyable. The tourists were unable to follow the bean confetti as the chickens along the road made the discovery first and consumed the landmarks. The people of Boston were alone able to follow such a trail. Under the guidance of President Farson the cars assembled at the German Building in Jackson Park, Chicago, and proceeded in a most dignified and orderly manner to enter the progressive city of Chicago. They were strung out with the escort for sev-

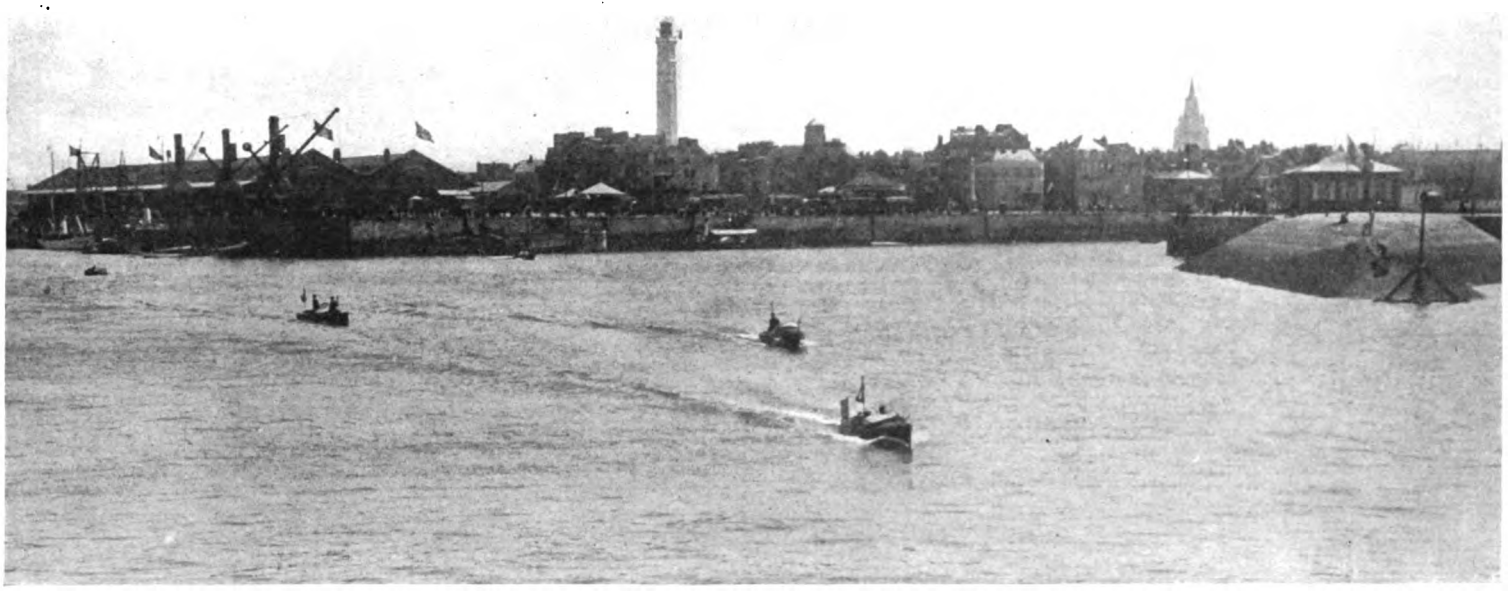


READY FOR THE MONDAY MORNING START FROM CHICAGO

(CONTINUED ON PAGE 52.)



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LEAVING CALAIS AT THE START OF THE CROSS-CHANNEL RACE

THE CROSS-CHANNEL BOATRACE

By E. Kenealy

The Cross Channel boatrace is to the swift. And *Mercedes IV,* speeding across the 22 miles of the silver streak between Calais and Dover in 1 hour 7⅗ seconds, made a magnificent seagoing record for motor-boats. *Napier Minor I,* of 40 less horsepower than the winner, by coming in second with the difference only of 4 minutes 18 seconds, added largely to the sea laurels she had already won.

This was the first Cross Channel motor-boat race ever held. It was organized by the Automobile Club of France, and aroused the keenest enthusiasm among the land and water motorists of both countries.

A calm sea and a brilliant sunset gave a weather seal of approval on the event. Dover and Calais were crowded with motor enthusiasts. The channel was the racecourse. And the atmosphere was so clear that the starting and finishing points were plainly visible at one and the same time. The fast turbine steamer *Queen* left Dover, August 8, at 11.30 A. M., on the arrival of the three special trains from London, which brought the greater part of the 600 souls aboard, who watched the contest from the clean, white decks of this magnificent boat. Calais was reached in an hour. The harbor was full of craft—motor, steam, sailing, rowing, and fishing types all represented. The sea, which the night before had looked so lion-like that a postponement of the race seemed possible, had calmed down like a lamb—a fact which *Napier Minor,* built for choppy seas and breasting the waves, was much regretting.

The preliminary canters in harbor of the motor-boats were watched from the *Queen's* decks by critical and expert eyes. When *Mercedes IV* leapt to sight—graceful, lithe, and darting like a "swift"—everybody knew that a powerful rival had loomed up on the British horizon. Mr. Edge was the first to acclaim her as the winner, should all go well. *Mercedes IV* has a 90-horsepower Daimler engine, and her only French ingredient is her aluminum painted, Pitre-built hull, 39 ft. 4 in. long. She is as clean and dainty a craft as ever left a shipbuilder's yard. Her color and her sheen in the sunlight soon earned her the name of the "silver torpedo."

By 1.15 P. M. nearly all the competing boats had slipped by the *Queen,* en route for the starting point opposite the Casino. The *Princesse Elizabeth,* Delahaye engined and hulled by Tellier, "slithered" by, her driver dressed in the deshabille of a bathing suit.

The *Vas-y,* another Delahaye in the cruiser class, was hailed as "favorite" as she sped by. The popular fancy was justified, since she was destined to win President Loubet's handsome Sevres vase for the best time in the cruising class, viz., 1 h. 57 min. 19 sec.

No more picturesque craft moved in Calais harbor on race morning than *Aurore,* the subsequent winner in the fishing boat class. Broad in the beam, roomy, practical and seaworthy, with a crew of two dressed in bright blue linen and two in much-bepatched blouses of brown sailcloth aboard, and the wife of the owner in the bows, the *Aurore* heralded the coming of a motor-fishing craft to revolutionize the ways of the fishers and the hauling powers of their nets.

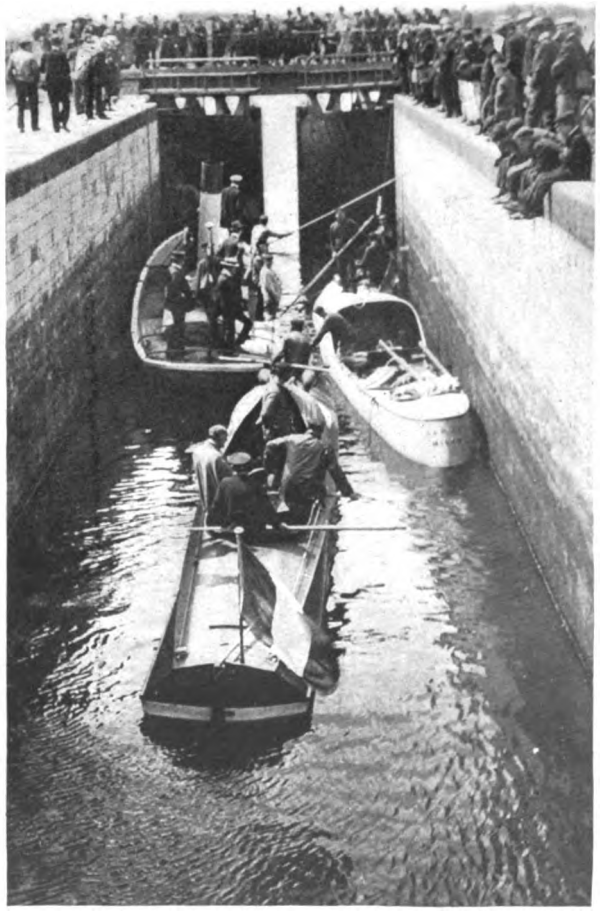
THE START.—But the sound of the gun warned us to be on the lookout for the start. Twenty-one boats went off in a calm sea, and at low water, in a speed stampede at gun-fire. From the distant decks of the *Queen,* the boats getting off helter-skelter, most of them starting true and to the second, looked like a school of playful porpoises ploughing up the spume and the spray, playing in the waters as the dolphins play round an ocean steamer.

"*Hotchkiss* leads!" was the cry. And, true enough, the mahogany-colored, fine-lined boat was coming onward in a magnificent speed-spurt. *Mercedes* was skimming along at a fine follow-my-leader pace; *Napier Minor* third, but gradually creeping on and gaining leeway.

Hotchkiss, true to her gun genealogy, shot forward—when suddenly, nearly a mile from shore, it seemed as though her powers were spent, her "charge" exploded, and she stopped dead. Her sparking-plugs were faulty; Henri Fournier at the helm worked like a Trojan. But his efforts were of no avail. And when the *Queen* steamed forward to follow the German and British leaders, *Hotchkiss* lay like a useless log on the face of the waters, and finally reached Dover at about 4.30 P. M., and then was towed into the inner harbor by the *Titan II.*

THE OTHER BOATS.—The torpedo destroyer *Durandal,* with M. Pelletan Minister of Marine, and a large party on board, was hard put to it to act as course-setter to *Mercedes IV* and *Napier Minor,* the latter appearing for a time to be creeping up to the Daimler boat, but the latter soon broke away and headed for Dover at a tremendous pace. It was soon seen that the torpedo-destroyer *Durandal* was "stoking" up and crowding its engines so as to keep ahead of the two first boats. The torpedo-boat *Alarme* meanwhile hung back to act as convoy to the rear boats.

Trefle-a-Quatre, now competing for

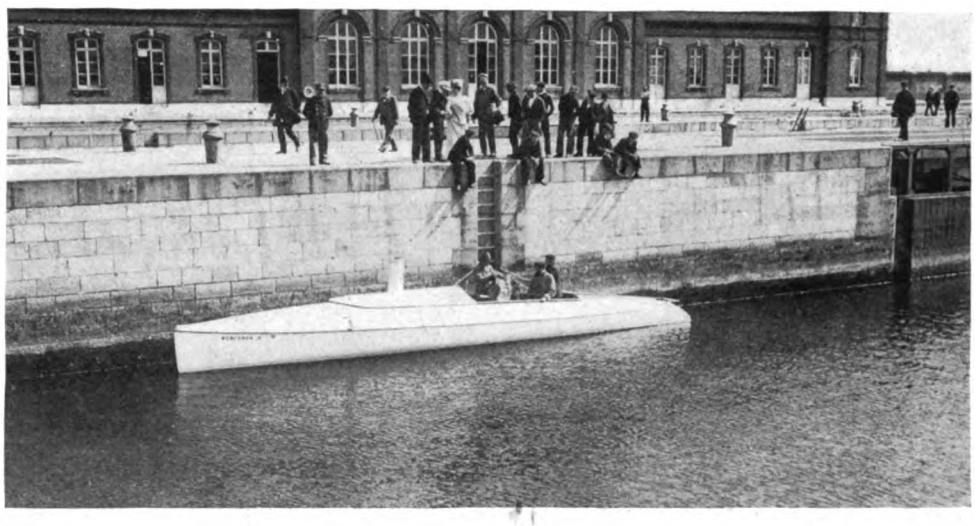


THE HOTCHKISS AND THE NAPIER MINOR IN A LOCK AT CALAIS

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Great Britain, at first took up third place and was rapidly catching up the two leaders, when she suddenly began to go badly and was stopped by a seized valve. The *Titan II, Le Nogentais, Ex-Marsouin II, Princesse Elisabeth, Camelia*—a late entry—*Admiral Bruix,* and *Triplex* passed by in the order named, but steering very different courses.

But the *Princesse Elisabeth* soon forged ahead, and with *Mercedes* first, *Napier* second, and *Princesse Elisabeth* third, soon after the start, this order was maintained all the way across the channel.



THE ALUMINUM MERCEDES IV ALONGSIDE THE QUAY

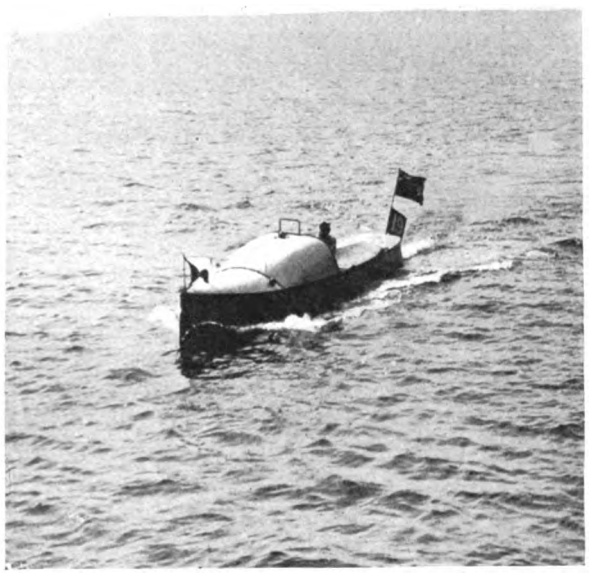
The captain of the *Queen* had calculated too much on the speed of his fine turbine. Hence he made an error of judgment in not sooner following in the wake of the leaders. So that the passengers on the boat saw little of *Mercedes* and *Napier,* save that the former looked like a speck of sea-foam in the distance and the latter like a far-off sea-plough. Nevertheless, the *Queen* was steaming her 21 knots per hour. The captain and crew of the *Queen* were not pleased at being shown such a clean pair of heels by the motor-boats.

M. Tampier acted as timekeeper at Calais, and M. Gaudichart at Dover, both being the official timekeepers of the French Automobile Club.

THE FINISH.—We knew before we got the news that *Mercedes* had won, and we knew equally well that Mr. Edge had steered *Napier Minor* to a second and most honorable place in the race.

Nearing Dover, *Napier Minor,* with Mr. Edge clad in sou'wester and oilskins, and drenched to the skin, at the helm, came out to meet and to manœuvre round the *Queen* in graceful and picturesque aquamobile movements.

THE PRIZES.—*Mercedes IV* gains the gold medal presented by the Minister of Marine, and a money prize in addition, while *Napier Minor* gets a prize of 1,000 francs, presented by the International Sporting Club of Monaco for the boat competing in last spring's races at Monaco first to arrive in Dover. The *Marthe,* Cazes motor, gains the coveted Recope Cup for the best performance of a paraffin-fueled boat.



THE NAPIER MINOR AT SEA

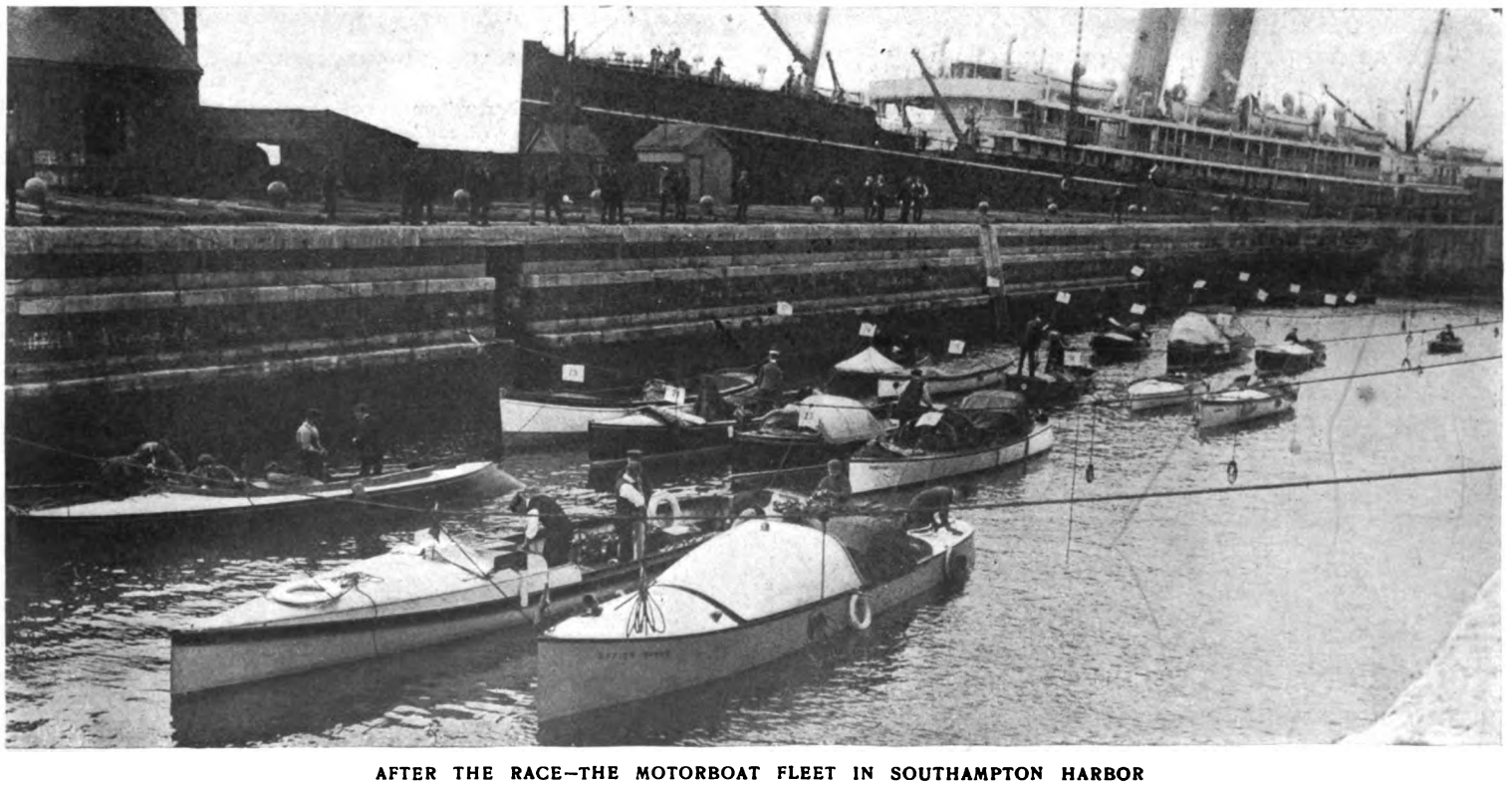
The *Noemie* won the prize offered by the Minister of Agriculture for the best boat using denatured alcohol—or as one of the London dailies called it, "denaturalized" alcohol. The De Leon Cup for alcohol fuel users was not awarded, since the *Noemie* was the only competitor in this class.

The *Vas-y* carries off the President Loubet Sevres vase, which will make her more "vasy" than ever.

The *Napier Minor,* which ran second in the Channel race, won the Harmsworth trophy several days previous to the dash across from Calais to Dover. The *Napier II* took the first heat when the American entry, the Smith & Mabley *Challenger,* went wrong; the *Napier Minor* next defeated the *Napier II* and then disposed of the *Trefle-a-Quartre* in the final. Concerning the first heat the *Motor News* says:

"In the first heat *Napier II,* the American boat, entered by Messrs. Smith & Mabley, and the French vessel, entered by Mons. A. Clément, came to the mark. When the signal was given it was found that the Clément boat had fouled her moorings, and thus was unable to get away. The American challenger dashed off in excellent style, and quickly took the lead of the big *Napier.* She was fully three-quarters of a mile ahead at the turning-point, and the English boat looked hopelessly out of it. Then, unfortunately, the leader had a mishap to her carbureter and broke down, so that the *Napier II* came in an easy first, with two minutes to spare. The race was disappointing from the poor show made by *Napier II,* while the accident to the American boat eliminated a competition which would have been most interesting to see it pitted with the French boat in the final."

Further testimony regarding the excellent quality of American boats developed a fortnight after the English contest, when the *Vingt-et-Un,* built by the makers of the *Challenger,* and along similar lines, maintained an average speed of 25.64 miles an hour in a race over a fifteen-mile course at Newport, R. I., when she defeated the *Swift Sure,* the Herreshoff conception, and the *Mercedes,* owned by W. S. S. Burgess.



AFTER THE RACE—THE MOTORBOAT FLEET IN SOUTHAMPTON HARBOR

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EDWIN R. THOMAS



A GROUP OF INTERESTED OBSERVERS ON A CONVENIENT KNOLL



COLONEL ASTOR

SOCIETY AND ITS MOTOR MEET

By Marston

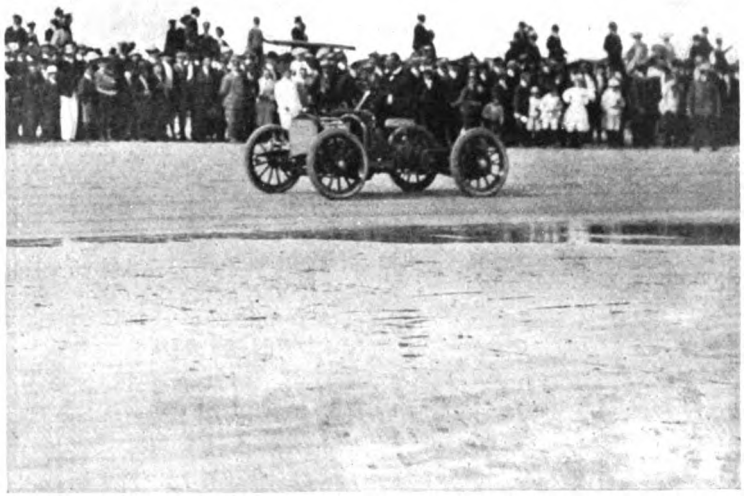
When the annals of the season of 1904 at Newport come to be written, it will be found that the motor races organized by the Newport Amusement Association on the Sachuset Beach have been the most successful feature of the summer, not merely from a sporting point of view, but likewise in a social sense. The entire summer colony was in attendance, and manifested a degree of interest and enthusiasm which no horse or dog show has ever been able to arouse. The fact of the matter is, that whereas comparatively few people are experts on the subject of horses, almost everyone in society nowadays is interested in motors, and is thus brought to study the various points and intricacies of the machines. Most of the driving at the races was done, not by the hired chauffeurs, but by the owners of the machines, Col. John Jacob Astor attracting no end of attention in his strange looking, green goggles; and among others who made a good showing at the levers of their cars were Peter D. Martin, who married the daughter of Charles M. Oelrichs; T. Shaw Safe, Henry Bull, Jr., J. Mitchell Clark, and E. R. Thomas. The weather was perfect, and the course on the beach all that could be desired.

* * *

Col. John Jacob Astor, with Alfred Vanderbilt and Lispenard Stewart, have organized a new automobile club at Newport, recruited among the summer residents of that place, and which bears the title of the "Newport Automobile Club." The membership now numbers fifty, and on the roster of the club are Egerton L. Winthrop, Jr., Lorillard Spencer, Nathaniel Thayer, Pembroke Jones, Joseph Harriman, J. F. Pierson, and W. G. Roelker.

* * *

For the first time this year, the summer horse shows show the influence of the motor, by the decline in the number of entries, and, above all, by the wane in the interest manifested by society therein. Indeed, the horse shows at Bayshore, at Monmouth Beach, at Atlantic City, and even at Bar Harbor, where the motor is frowned upon by the local authorities, have attracted far less attention on the part of the fashionable set than in recent years, and are no longer regarded as constituting the chief feature of the local season; while at Newport, where the horse show is now taking place, the same decrease of popularity is apparent. This was only to be expected. For at Newport motors have been used this year more extensively than ever before, forming, indeed, almost the only means of locomotion, people using carriages and horses being few and far between. Indeed, even Alfred and Reginald Vanderbilt, who are among the strongest supporters of coaching, and who are devoted to horses, have this season made but little use of the latter, re-



COLONEL ASTOR DRIVING HIS MERCEDES



HARRY HAMLIN AND HIS WINNING PANHARD



MRS. KERNOCHAN—COL. JAY



"THAT'S HOW TO WIN IT!"



"AND WHY DIDN'T YOU DO SO?"



HARRY LEHR

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E. R. THOMAS AND CAR



REGINALD VANDERBILT AND A GROUP OF OFFICIALS



CLERK OF COURSE

stricting themselves almost entirely to their motors, of which they each have a large number.

* * *

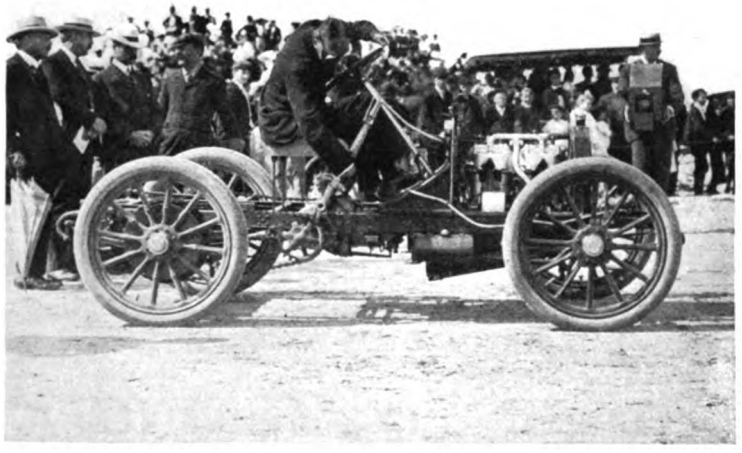
Motor cars, according to Lord Claud Hamilton, the president of the Great Eastern Railroad of England, are beginning seriously to affect the receipts of the railways. The figures show that people going out of town no longer send their horses and carriages by rail, but dispatch in lieu thereof their motors by road in charge of their chauffeurs. Moreover, so many of the well-to-do people who have country seats within 100 miles or so of London now use their motor cars to such an extent for their trips to and from town, that the railroads have suffered thereby. There is no doubt that in this country, the railroad presidents, especially of those lines leading into big cities, would, if questioned, make similar admissions to those of Lord Claud. Large numbers of the suburban residents in Westchester County, and on Long Island, who were wont formerly to depend on the Long Island Railroad and upon the lines running into the Grand Central Station, now confine themselves to the use of their motor cars, which accord to them so much more independence in the matter of time and convenience. As motoring is after all merely in its infancy, its development, progressing each year by leaps and bounds, it is certain that its relations toward the railroads is bound to become more and more felt by the latter as time goes on.

* * *

J. Dunbar Wright, of the Automobile Club of America, has just returned from a trip around the world, and, since his arrival, has gone up to his camp in the Adirondacks, making the trip in his Panhard touring car. There are quite a large number of automobiles up in the Adirondacks this fall, and nearly every camp around the Upper St. Regis, and the other lakes in the neighborhood of Paul Smith's, is now equipped with large and roomy garages for the motors of its owners. Some people, such as Mr. and Mrs. P. M. Benedict, are making a tour through the mountains in their car. They carry fishing tackle, and whenever they reach a promising mountain stream, they make the most of their opportunities.

* * *

Mr. and Mrs. H. McK. Twombly and their daughter are at the present moment touring through Europe in a motor of 40-horsepower, a Mercedes. They started from Paris, and, according to latest advices, had reached Aix-les-Bains, from whence they were to proceed to Italy. Others touring abroad in automobiles are: E. Clarence Jones, of New



COLONEL ASTOR READY FOR A START



A. E. MORRISON AND THE PEERLESS VICTOR

York; Mr. and Mrs. Robert Goelet, Mr. and Mrs. William K. Vanderbile, Mr. and Mrs. George Gould, who have two new Mercedes; Mr. and Mrs. E. H. Harriman, and Townsend Burden with Miss Burden.

* * *

Emperor William has designed a new livery for his chauffeur. It is of dark brown leather, and the silver banded cap is embroidered with a black eagle. When the Emperor is on board, the band around the cap is a very broad one, while on other occasions it is narrow, so as to

(CONTINUED ON PAGE 50.)

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JUST A GROUP



HARRY HARKNESS IN MERCEDES—MR. THOMAS THE OTHER CONVERSATIONALIST



ANOTHER GROUP

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HAWLEY AND THE THOMAS MERCEDES DEFEATING HARKNESS AND HIS MERCEDES AT LONG BRANCH

THE JERSEY SHORE'S MOTOR INNING

By Igniter

The forerunner of a greater carnival next year was the first annual that during the week of August 15 extended itself down the New Jersey shore from Long Branch to Spring Lake. All sorts of motor doings were included in the programme, which provided for straightaway racing, track contests, floral parades, and intermingled was a non-stop run.

Edward Hawley, driving the Mercedes owned by E. R. Thomas, was the bright and particular star of the racing, both on road and track. He scored repeatedly over Harry Harkness and his similar-powered Mercedes, and the concluding victory was a quick defeat at Spring Lake of B. M. Shanley, Jr., now the possessor of the ex-William K. Vanderbilt, Jr., Mercedes, which scurried a world's record mile over the Florida sands in 39 seconds.

In the events for stock cars, Joseph Tracy figured prominently with the Royal; H. R. Lounsberry, Jr., with a Meteor, secured some of the honors, and Charles R. Greuter guided the Matheson car to a first place in its racing début.

A notable feature in connection with the racing was the presence of a coterie of noted ex-cycling champions. Arthur A. Zimmerman, once the wheel king on both sides of the Atlantic, acted as starter; Edward C. Bald, a three-time champion of America, and a motor racer of the near future, did the clerking of the course; George A. Banker, who won the world's championship at Vienna in 1898 and was unfairly deprived of it at Cologne in 1895, also figured as an official, while Frank L. Kramer, the present two-time champion of America, was an interested spectator on a couple of days, for he may be in the thick of it another year. It is worthy of note that Earl Kiser, who drove the Winton Bullet No. 2 to a new world's track record of 52 4-5 seconds at Cleveland, August 22, is another ex-cyclist. From the ranks of cycling many a good driver has been obtained, both here and abroad.

A. L. McMurtry's timing instrument was employed for the first time in straightaway motor car racing, and it gave thorough satisfaction. Its general use is assured, and it will be seen at the next Florida meet.

A novel feature in connection with the racing was the show held in an attractive little casino near the course. In this there were 8,000 square feet of exhibition space, every foot of which was pre-empted by dealers from New York City and other places long before the carnival was held.

It is said that this summer show by the seaside proved as profitable to many as the more pretentious mid-winter affairs that are held in the large cities, and it is not unlikely that in the future dealers in motor cars will profit by the lesson thus learned, and instead of waiting in the society-deserted towns for business during the summer, will follow the prospective purchasers to the summer resorts.

The hall was lighted by electricity, and, during the evenings, was kept open for the convenience of New York business men who make a practice of escaping business cares early enough in the afternoon to take a dip in the surf before night.

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THE QUESTION OF TRACK RACING

By Frank A. Garbutt, Los Angeles, Cal.

To the Editor of MOTOR:

Dear Sir:—It was with a considerable degree of surprise that I have read the article of Mr. Batchelder in your July number. First, that your journal would print an article so obviously unfair to automobile racing, and second, that any one claiming an intimate knowledge of the game should take such superficial and extreme views. If one of our daily papers, through the instrumentality of a sensational space writer in pursuit of his prey, or if you prefer, his daily bread, should do half the injustice, it would be very apt to hear from it in more ways than one. In this case the article should not be passed unchallenged. Even its author's implication that he has lost his nerve, while in itself a palliating circumstance, forms an insufficient excuse, for nowhere in the article itself, do I find any direct admission that he has also parted company with his judgment and fairness. Therefore, we must elect to take the article seriously, as no doubt the writer intended.

Laying aside all levity, however, the subject itself is a serious one, and well worthy of the most serious consideration. Not from the extreme of the prejudiced or the enthusiast, but with the cold, sober judgment with which the man of business is wont to weigh all of his affairs. "Is the game worth the candle?" In a discussion of this kind it behooves a man to first establish his qualifications, for without a personal knowledge of the subject, his views would obviously have no value, and I confess that it is with a feeling of much diffidence that this phase of the situation is approached. Mr. Batchelder is so thoroughly at home with the subject and has such intimate acquaintance with so many celebrities that my own poor little knowledge of the game must of necessity sink into insignificance in comparison.

We all know Winton, Schmidt, Oldfield, Whipple, and Fosdick as capable and fearless operators, each in his particular line, and Fournier, ever since motor cars were built, has been a name to conjure with. If I only knew Thery and Jenatzy, and had once ridden in their cars, how different it would be. Oh, happy thought! I have ridden with Oldfield, though I must with regret confess that it was only in a Winton stock car. Still the ride was "entertaining," and I believe that is all that Mr. Batchelder claims for his. Then, I have been competing in amateur races for some time; have ridden on an ordinary track at a 56 second gait, have driven a full mile on the track with an ordinary stock car in 1:06, and have driven on the track all told some 2,000 miles. In addition to this, I have made a study of the various race tracks in my section of the country and their adaptability to automobile racing, and have witnessed the fastest miles ever driven on mile tracks, to wit: World's record mile in 55 seconds, two unofficial miles in 54 4/5, each on an elliptical track, and mile in 53 flat. In the past year I have entered and competed in twenty-five track events, and have returned winner in a goodly portion, and last, but not least, have in the past year of racing experience witnessed four cars go through the fence. In addition to the above, I am of course, familiar with the published reports of all of the important race meets in the world.

In view of the fact that I may some day meet with a fatal accident, and be forever after held up as a horrible example, I almost hesitate to give my conclusions, which are, that under proper conditions, track racing is almost absolutely safe. It is certainly far safer than the average road touring, and is only exceeded in safety by speed tests on courses like the Florida Beach and the specially prepared and guarded foreign roads. Under proper conditions, a speed of a mile a minute on the track is safer than 40 miles per hour on the road. I am speaking, of course, of the ordinary American roads.

(CONTINUED ON PAGE 64.)

By A. G. Batchelder, Editor of MOTOR

Motor racing in the East this season when held on the mile tracks constructed for the "sport of kings" has had for participants a scant number of amateur drivers. The paid chauffeur and the employe of the manufacturer have usurped the field generally, and the man who raced "for the fun and excitement of the thing" has been a disappearing quantity. This man reappears for straightaway contests, but the track no longer possesses much fascination for him. That he had begun to realize the risks that he ran, is a deduction accepted by many. It is not difficult to understand why the paid performers continue to endanger limb and, perhaps, life itself. With them it is a livelihood, and a spectacular tinge of fame serves to whet their paid appetites.

With unlimited horsepower the personal equation of the pilot resolves itself into the question of what one will take the unbanked corners beyond the strained safety point. This is sport to the same degree that the circus daredevil makes his leap from the dome of the tent.

My contention is that the ordinary, slightly-banked horse track calls for such high speed on turns and affords so little straightaway going that if races are to be won risks prohibitively great must be run. Certainly it will not be disputed that a maintained speed of from 60 to 70 miles an hour both on curves and straightaway nowadays has come to be necessary to win motor races on trotting tracks. And certainly Mr. Garbutt is too good a sportsman to find excitement or to see pleasure in track racing if there is no winning to be done.

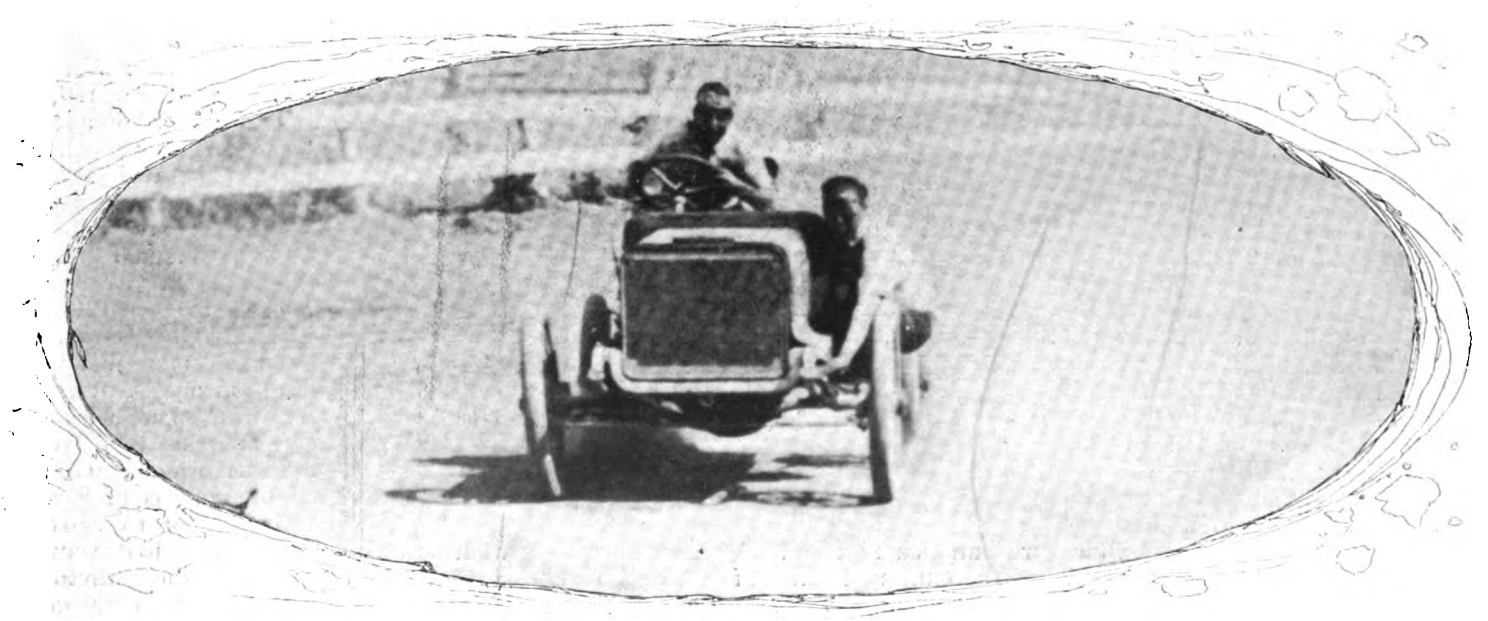
Mr. Garbutt is a thorough sportsman and a motor racer of attainments. This is probably the reason why his opinions as expressed in the adjoining column are so strongly in favor of "the game being worth the candle." But, in the violent exception that Mr. Garbutt takes to the article in the July MOTOR, he makes a number of statements that seem to call for refutation, and quite fails to make good his case that track racing with motor cars is safer than racing such vehicles on roads.

Mr. Garbutt's conclusion that "track racing is almost absolutely safe," under any conditions—except those of low speed—is, to say the least, startling, in view of the many serious and minor accidents that have attended this sport during the short time it has been in vogue. Moreover, such begging of the question as the assertion that a speed of a mile a minute on a track is safer than 40 miles an hour on "ordinary American roads" hardly comes with conclusive force. There is no question in the mind of ordinary people, acquainted with the facts, and not afflicted with "motor madness," that a speed of 40 miles an hour on "ordinary American roads" is highly dangerous—whether slightly more or less so than a mile-a-minute speed on the track not being pertinent to the subject.

Mr. Garbutt's "critical looking into" my statements that "there is tremendous strain on the tires" and that "there should be specially constructed motor tracks" calls for a little more critical looking into. In the first place, such a statement as that the measure of the side stress on tires is simply "the force necessary to move the car sidewise" is one of those half truths that so often convey a more erroneous impression than a statement that is quite incorrect.

There are more factors concerned in the determination of the "force necessary to move the car sidewise" than Mr. Garbutt takes the trouble to mention. The limit of the side stress that can be brought against a tire under ordinary conditions is the point at which the tire commences to slip upon the road surface, a point that happens to be largely determined by the weight the car carries. And, as the weight carried by the tires of a car at rest, with "a team of horses hitched

(CONTINUED ON PAGE 68.)



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AUTUMN FADS FOR THE MOTOR GIRL

By Grace Margaret Gould



TO DEFY DUST AND RAIN

After all, there has never been any sport to equal motoring.

To the inventive woman it came as a godsend, for it has shown her a thousand new ways to spend her money; it has given her opportunity to delight in a score of new fads. And every new fad that the smart girl can add to her list, is just one more delight added to her day.

Her latest is just a new application of an old theme. Didn't the Indians use to make notches on the handles of their rifles for every scalp they took, and didn't the summer girl use to be accused of counting her love affairs somewhat in the same manner? But the motor girl—well, she keeps tab of her adventures in a most novel and much the same way.

Dangling from her long watch chain, or her fob, she has an odd little bunch of charms, each one of which is supposed to recall something she doesn't wish to forget, so she calls them her Memory Dangles. And they are a motley collection. A diamond-studded little gold motor car will glisten and gleam next to an inexpensive bit of a silver pig, while among the other charms are little gold motor caps. A black-enameled kitten, a pretty green four-leaf clover, a miniature motor horn, a jewel-studded horseshoe, and an odd little trinket made to represent a punctured tire. A Memory Dangle to add to her charm ring is what the up-to-date modern man now gives to the motor girls of his acquaintance in place of flowers and bonbons.

Gauntlets matching in color the motor coat are now worn by the smartest motor girls. They are made with the gauntlet cuff stiffened, and at the top display the wearer's monogram, sometimes in printed gold letters, and sometimes hand embroidered. Many a girl has as many as a dozen pairs of gauntlets, in shades of tan, brown, mauve, deep green, and dark red.

Though later in the season the kid coat will reign supreme again, yet just now the best-dressed motor girls are wearing coats of silk, some of which are lined with thin rubber, and others of which are entirely of silk. It is in the trimming that these coats are distinctive, and display the wearer's individual taste. Odd-shaped kid cuffs and collar are used with these silk garments. The cuffs are often made in the form of a deep band ending in long points which are buttoned together. A mauve silk coat recently imported had the cuffs and collar of pale amethyst kid, while each one of the triple capes was piped with a line of this delicate kid. The buttons which trimmed the coat were of glass, imitating amethysts, and were set in rims of mauve-colored kid.

Embroidered kid is all the rage with her motoring ladyship. She uses it lavishly, quite regardless of the cost. Embroidered kid belts are her delight, as well as big buttons. Adjustable embroidered kid cuffs are another of her fads; in fact, kid collar and cuff sets are now embroidered to order, to suit the fastidious motor girl. They may be worn with any coat with which they will be suitable, and will give it a smart, new look.



A JAUNTY COSTUME

Double rosettes in two shades of kid having an attractive button for the centre are one of the new trimmings for motor hats. Hats of soft felt are also being made up for the motor girl with a band of embroidered kid about the crown caught through an embroidered kid buckle at the side.

Adding to her collection of veils is still a fad with the girl who races through the country in a motor car. She invariably wears two veils at the same time, to say nothing of tucking away in her pocket one of rubber tissue to put on in a hurry in the emergency of an unexpected shower.

The face veil it is well to have bound with elastic; one elastic should be made to fit closely around the top of the hat or cap, the lower part of the veil being also held in place with an elastic. This should not be drawn very tight, however, for the veil may be further secured under the chin by the elastic fastening with a hook and eye.

The second veil is not worn as a face protector, but should cover the back and sides of the head, tying in front in a bow or a loose four-in-hand knot. The newest auto hatpin, though a safety pin, yet has its form disguised by the top being shaped to represent a graceful peacock feather colored so that it exactly imitates the original. Surely, the motor girl has thrown all superstition to the winds.

The Vanity-bag is one of the most prized possessions of the motor-loving girl. It is made of kid, generally matching her costume in color, and it is sufficiently large to carry enough toilet accessories to make her a "thing of beauty" at the end of a motor trip. The bag is fitted with a jar of face cream, a little powder box and puff, a small comb, a nail file, a box of hairpins, a viniagrette for smelling salts and a box for holding an extra veil or two.

Other small accessories with which a girl a-motoring is likely to encumber herself, especially when on long tours, are the components of small luncheon outfits, perhaps carried in a smart wicker hamper, strapped to the car, but as often stowed in the most minute corners of lockers, or even of toolboxes. It is indeed surprising what nowadays is to be had in the way of tiny alcohol stoves, collapsible chafing dishes, diminutive teapots, etc., with which the flavor of a roadside repast may be heightened by the addition of a hot dish or so.

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THE RECORD RACING IN EUROPE

By Monsieur Carbureter

BASTOGNE, Belgium, Aug. 1.—Panhard stock has been raised to its former value.

Heath, an "American Parisian," driving a Panhard-Levassor, was first, and Teste, of the same "stable," was second, in the famous Circuit des Ardennes, run last month under favorable conditions. Moreover, Henri Farman, also with a Panhard-Levassor, would have been among the first three, and possibly first, if one of his tires had not been "burned off."

It was a Panhard day, and the friends of the famous pioneer are jubilant.

The circuit was 120 kilometers in length, and, being traversed five times, made a total of 600 kilometers, or 372.82 miles.

Heath's time was 6 hours 30 minutes 49 seconds, so that he drove at an average speed of 57 1/5 miles an hour.

There were no control stations and no neutralizations on the circuit, so that the contestants and their machines had the advantage of a clear run from start to finish, and at the same time were subjected to a severe test of endurance.

It seems that the little defect in the cooling apparatus, which gave the Panhard trouble in the French eliminatory races, had been entirely removed, for the Panhard mechanism went through the ordeal to-day without a hitch.

Young Clément, son of the well-known manufacturer, added to his budding reputation by bringing his Clément-Bayard to the line in third place. Yesterday, with a Clément-Bayard voiturette, he won the race over the "short circuit" (240 kilometers), beating his only competitor, Edmond (Darracq), with ease.

Rigolly, hero of the Ostend kilometer dash and of many other startling sprints, had to take fourth place, thereby causing a recurrence of the common reflection that his Gobron-Brillié is "great" for short distances, but cannot negotiate the long stretches at comparatively the same rate.

Leblon, formerly the familiar pilot of a Gardner-Serpollet "steamer," made a fine showing with a Hotchkiss. The running of this newcomer was superb, and with a little more luck, it might have done better than fifth place. He made the first round, 74½ miles, at the rate of 64¾ miles an hour, but could not maintain this pace in the succeeding rounds.

There were thirty-three starters, but those who finished numbered only sixteen, thus showing a "fatality" of fifty per cent.

The route of the Circuit des Ardennes is as follows: Bastogne (start), Barrière de Champlon (23 kil.), Saint Hubert (36 kil), Recogno (49 kil), Neufchâteau (62 kil), Longlier (64 kil), Habay-la-Neuve (84 kil), Carrefour d'Arlon (96 kil), Martelange (104 kil), Bastogne (120 kil.).

The results were as follows:

	Driver.	Automobile.	H.	M.	S.
1	Heath	Panhard-Levassor	6	30	49
2	Teste	Panhard-Levassor	6	31	34
3	Clément	Clément-Bayard	6	34	43
4	Rigolly	Gobron-Brillié	6	42	4
5	Leblon	Hotchkiss	6	54	5
6	Duray	Darracq	6	55	54
7	H. Farman	Panhard-Levassor	6	57	29
8	Gabriel	Dietrich	6	58	51
9	Mayhew	Napier	7	27	42
10	Léger	Mors	7	45	15
11	Fletcher	Mercedes	7	53	00
12	Bianchi	Wolseley	7	54	10
13	Lancia	Fiat	7	55	25
14	Salleron	Mors	7	55	34
15	Touloubre	Darracq (light)	7	48	59
16	Hémery	Darracq (light)	8	9	35



RIGOLLY, DOING HIS GREAT KILOMETRE AT OSTEND IN 21 3-5 SECONDS—103.56 MILES AN HOUR

PARIS, Aug. 10.—The chauffeur contingent came back from Ostend with its pneumatics swelled with pride, for a Parisian automobile, in the races at the Belgian summer resort, had beaten all records of speed.

Rigolly, "toujours" with his big Gobron-Brillié machine, covered a flying kilometer in 21 3/5 seconds. The speed thus attained was 166.666 kilometers, or 103.56 miles an hour. Baras, with a Darracq, could "only" cover the distance in 22 seconds, and therefore, in comparison, he was very "slow." His "loafing" was at the rate of 101.45 miles an hour. Another "straggler" was Leblon, with a Hotchkiss, whose time was 25 1/5 seconds.

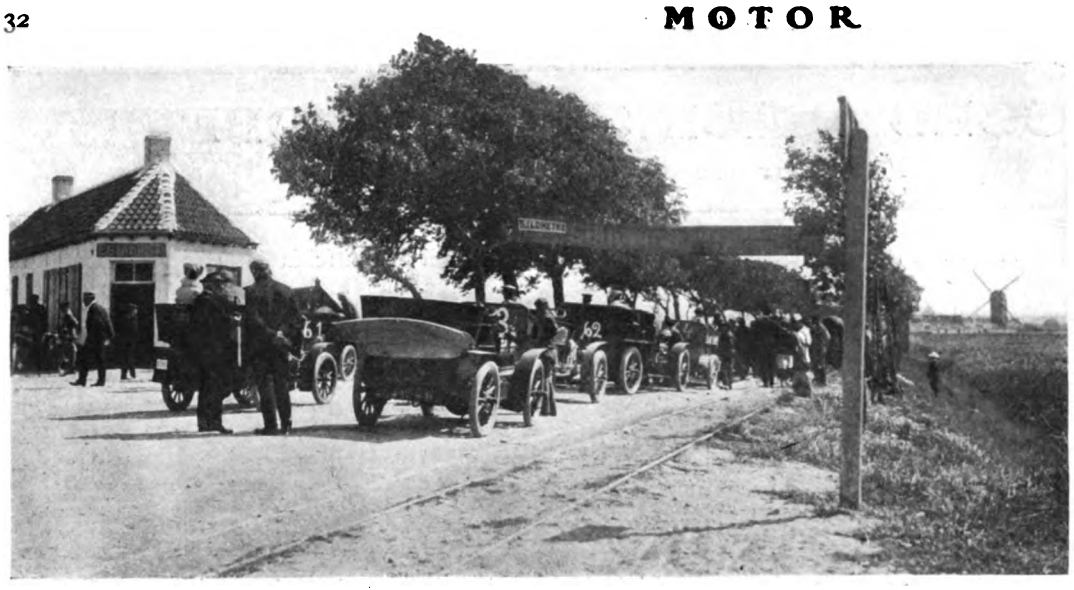
In the light auto class, Hanriot, with a Clément-Bayard, went the course in 23 1/5 seconds, and Edmond, in the voiturette class, with a Darracq, registered 32 seconds.

The Gobron machine, by its wonderful run at Ostend, establishes firmly its claim to being the fastest of all at speed dashes.

The mile dashes, standing start, were also productive of remarkable times. Baras, with his Darracq, covered the distance in 48 3/5 seconds, while Rigolly's time was 50 1/5 seconds.

The average speed attained by Baras was over 73 miles an hour, and he covered the last 566 miles in 13 3/5 seconds, this being at the rate of over a hundred miles an hour.

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THE VISITORS GATHERING AT THE STARTING POINT

PARIS, Aug. 15.—War on the "chauffards!"

It has been decreed by certain righteously indignant and self-constituted censors that the "scorcher" must be scotched.

The wail finds many an echo and seems to be based on logic and justice.

The truth is that the wild and reckless automobile driver has become a public danger. The average owner of an automobile, who drives here and there for pleasure, or to and from his place of business, is not the offender. It's the hired machinist, whose employer "pays the freight," that creates most of the trouble. He starts out with the machine, to take it to the repair shop, or bring it back, or to go for his employer, or perhaps, on the quiet, to give a ride to a few of his friends and their "gurrels," and he drives like a fire marshal on a general alarm.

If he cuts the hubs off a cab, or amputates some old lady's arm on the way, he stoppeth not to give his name, age, and address. Not he. He is the comet of the automobile system, and the public can gaze at his red trail if it wants to.

The avenue des Champs Elysées, in Paris, is the "chauffard's bowling alley," and after he has made the run from the Arc de Triomphe to the Place de la Concorde, it's a case of "all down." The Champs Elysées has verily become the Dead Man's Gulch of the Parisian neck of the woods, and the unwary pedestrian who reads his afternoon news of "another Japanese defeat" as he crosses the avenue, is sure to be recorded with those who never come back; or, if he recovers, he will think he has been in St. Petersburg.

Even M. Charley, the Mercedes man, who lives on one side of the avenue and has his office on the other, and who is certainly not "autophobe," admits that when he makes the crossing he takes his life in his hands and says his prayers in two languages.

The Paris edition of the New York *Herald* has started a crusade, and its action was at first rather surprising because of the fact that it has always been a leading organ of automobile news and projects. Mr. Bennett, however, didn't propose to shoulder the abuses of a sport and pastime of which he is such a prominent patron and promoter, and accordingly he started on the warpath with a big, broad pen.

Mr. Bennett proposed that, if the police department hadn't enough extra money to pay for proper police surveillance, he would donate 10,000 francs as a starter.

The proposition to accentuate the police stringency with regard to "scorchers" has been widely commented. The idea was all right in principle, but the automobilists were quick to recollect the early tyranny of the police, and they immediately said: "Deliver us not again to the 'intelligence and discretion' of the police."

Recollections of policemen with watches and about as clear an idea of speed rates as has a duck were enough to scare the entire auto fraternity into a fit, and the "good intentions" of the *Herald* were taken with a large "but."

The result will probably be beneficial, as the agitation will serve to tone down the harum scarum drivers nearer to a plane of sanity.

Much of the prevailing fault rests with the pedestrians, for the reason that the people in France, as is the case with the population all over Europe, are disposed to think the street is a promenade ground, and that sidewalks and side paths are only "on the map." They cross the street on a sort of "hen's impulse," and forthwith go to glory with a halo of gasoline smoke.



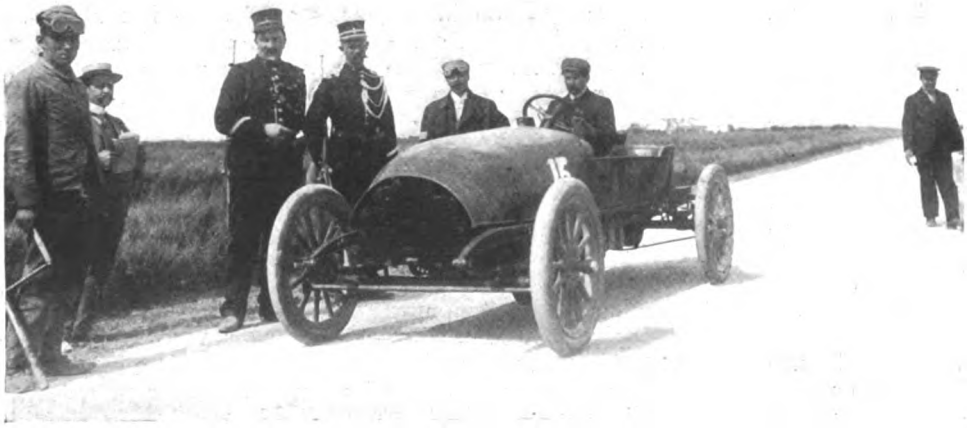
RIGOLLY AND THE GOBRON-BRILLIE CAR—THE 104-MILE-AN-HOUR COMBINATION

The press is just awakening to the fact that there are crossings and that when a blind man or nervous woman tries to negotiate the street between intersections, he, she or it is inviting disaster. Maurice Farman recently made a trip through Germany and Switzerland, and he reports that he went over a fresh trail strewn with dead ducks, hens and pigs. In France the victims are largely humans, so you can draw your own conclusions and comparisons.

A few mornings ago I saw a Mercedes automobile, carrying four persons, pass down grade along one of the narrow side thoroughfares of the Avenue de la Grande Armeé in an out-of-town direction at a rate of 75 miles an hour. I timed it mentally—police style.

This was at the early hour when women push bread carts about and the terrible milk wagon emerges from around the corner.

The automobile fanned a bread woman at the corner of the Rue de Tilsit, brushed the nose of a milk horse at the Rue Anatole-Lafarge, went between two market wagons at the Rue des Acacias,



HANRIOT AND THE CLEMENT-BAYARD CAR—WINNER IN THE LIGHT CLASS

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SCENE AT BEAUTIFUL AND FASHIONABLE OSTEND DURING THE MEET

swerved a little and missed a dray horse at the Rue Brunel, slackened to 60 miles an hour at the Boulevard Pereire and missed all the vehicles and pedestrians on the open place in front of the Bois, then changed to first speed and went through the Bois in the direction of New York.

There is a Providence.

The touring question reminds me of a remark made by an American motorist who was recently in Paris—none other than William Knabe, of Baltimore.

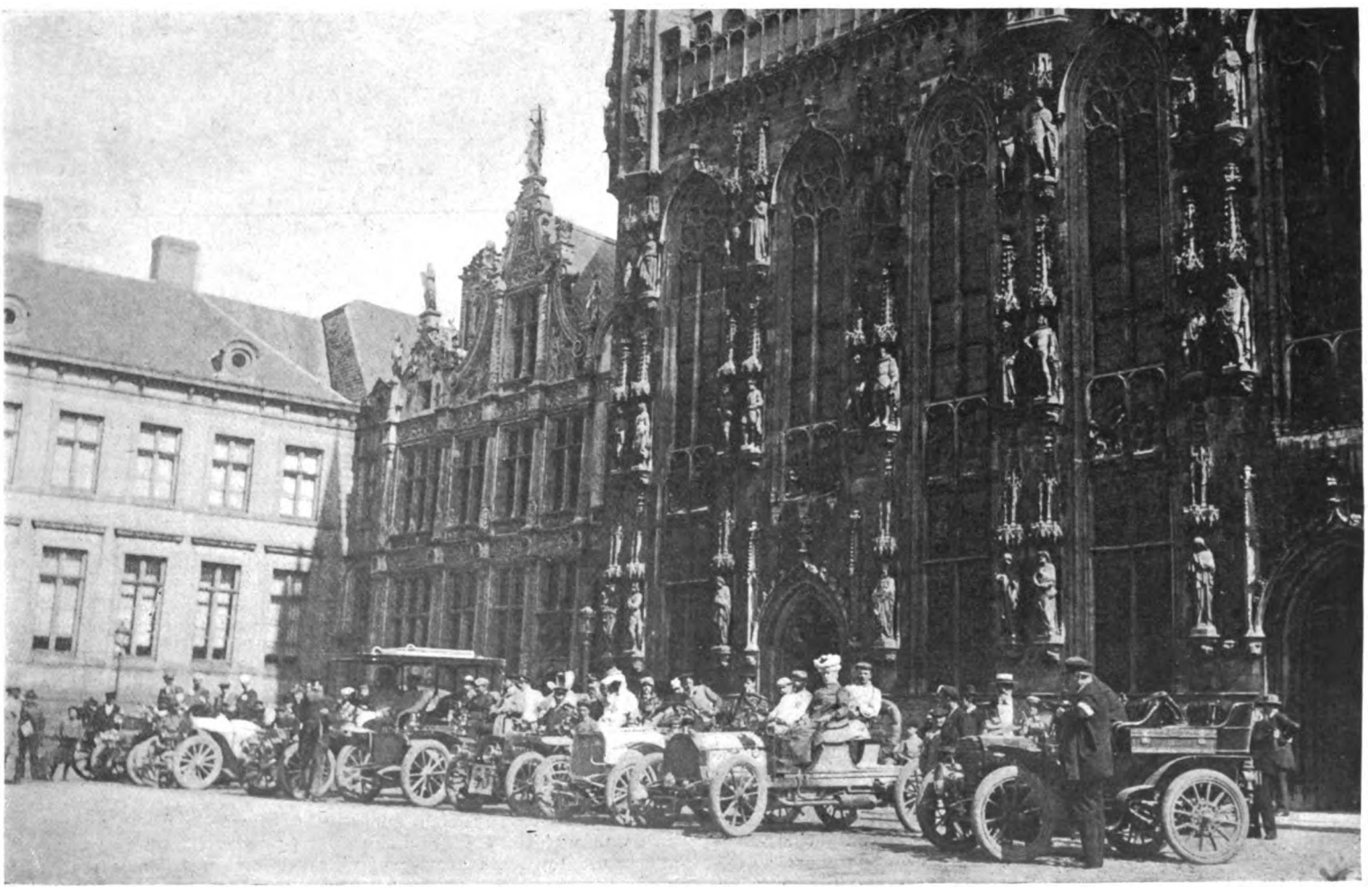
"French motor cars don't fit our American roads."

"What do you mean by 'fit'?" I asked.

"Why, they're not of the same gauge as our wagons and carriages, therefore they won't fit in the ruts. We can run the two wheels on one side in the rut, or wagon wheel track, but the other two must bump along the best they can.

Another feature of French-built cars with respect to their use on American roads is the proximity of their under gear to the ground. Some of the American drivers of French machines have suffered as a result of rude contact with inequalities in the road between the wheel tracks.

A motor car with the dust shield, or even the exposed machinery, gliding along within three inches of the ground is not uncommon in France, but if the roads of France were constructed under the supervision of a county supervisor and "worked" in the spring by farmers who know as much about road building as they do about radium culture, it is a sure thing that the bottom of the French automobile would be raised.



OSTEND TOURISTS IN FRONT OF THE OLD CHAPEL OF SAINT-SANG IN THE ANCIENT CITY OF BRUGES

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THE STORY OF A NON-STOP OBSERVER

By H. H. Everett

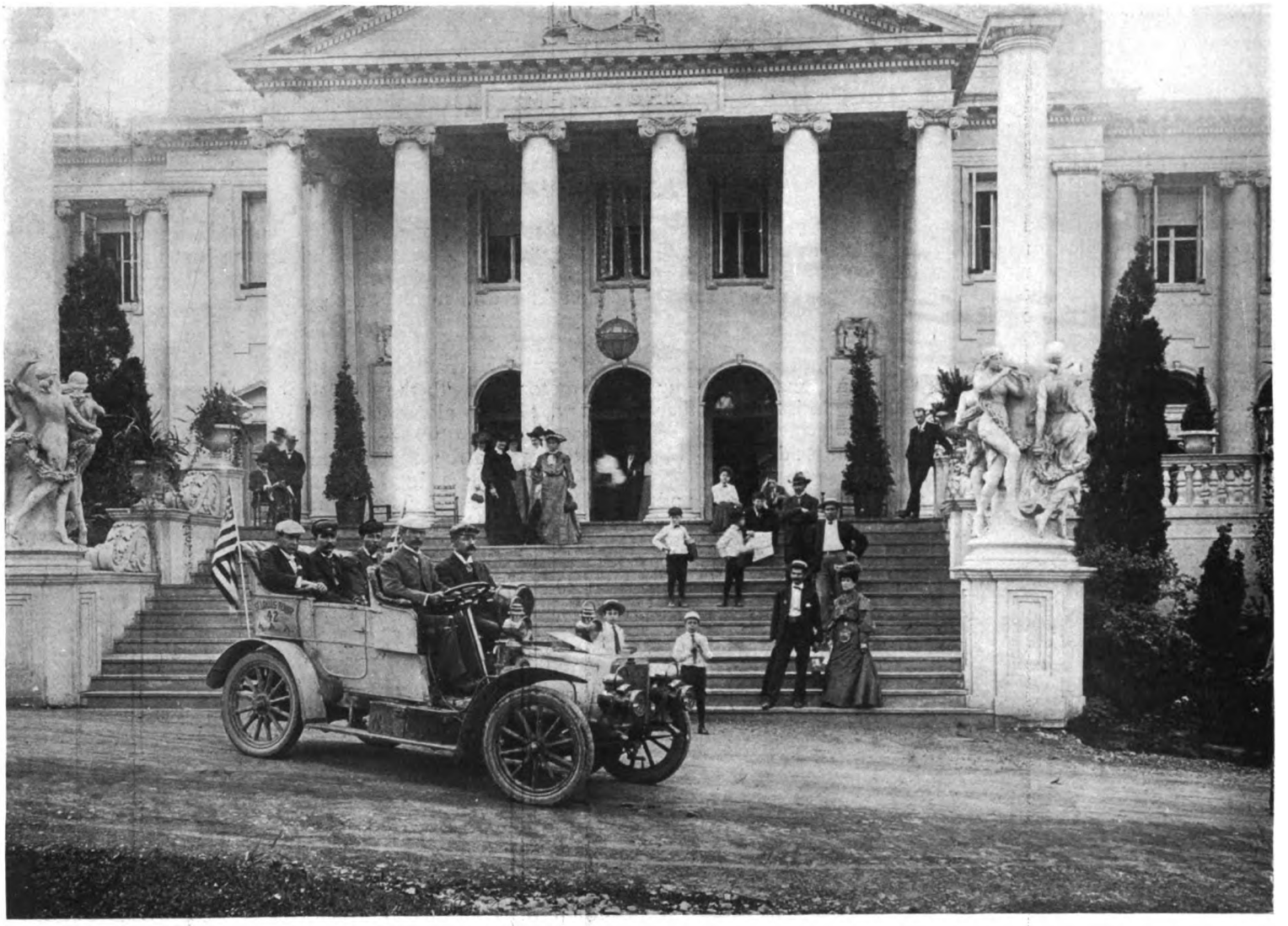
The Eagle flew out of New York to far St. Louis and flew back again. No one thought that he—this eagle—was a homing bird; every one foretold how his broad pinions would weary of beating against wind and tempest and toil—and failure. But his strong heart throbbed and beat with unceasing energy, and the eagle, despite everything—all nature—being against him, is home, perched high, a victor screaming his victory.

When Chairman Post of the Touring Committee of the American Automobile Association asked me over the telephone if I would care to act as observer on a motoring run to St. Louis, I said "yes" with mental reservations. From previous experience, I knew what long-distance tours entailed, when official observers were necessary; no pleasure tours are they; not soft side of things, but endurance of man and machine. I hastened down to Mr. Post's office and learned that it was proposed that I accompany F. A. La Roche in a 15-20 horsepower Darracq on a non-stop run from New York City to St. Louis and return to New York. Norris N. Mason was to act as alternate observer with me, and F. A. La Roche and Alexis Le Blanc as alternate operators.

My first relay commenced when I relieved Mason in Albany, and was aside with a sigh of relief when the road improved sufficiently to give the rear wheels the traction necessary to some kind of motion. I say, "some kind of motion" because it was not always forward motion. Frequently the rear of the car would commence slowly to slide toward the ditch, dragging the four wheels crab-like sideways. Out in the mud again, two of us would pull and haul with might and main, until slowly, slowly, back into the middle of the road the throbbing vehicle would find herself again.

It was indeed a memorable night. When the first gray of dawn forced itself through the murky mist of rain, we were nearing Herkimer. The storm with tenacious fury was still driving into our faces. The little motor, still humming busily, had carried us through to the dawn, and with nothing further to recount of it but that a sooted sparking plug was cleaned.

Cold, wet, weary, and hungry, we drove the car under the wagon shed of a factory on the outskirts of Herkimer and breakfasted on waterlogged sandwiches and cold, black coffee. It was yet too early to find a place where a warm repast could be had. The city was not



MESSRS. LA ROCHE, LE BLANC, MASON, EVERETT, AND STRAUSS IN FRONT OF THE NEW YORK STATE BUILDING AT ST. LOUIS

from the Empire state capital to Utica and Syracuse. Scarcely had we gone a mile beyond the outskirts of Albany when something wet fell upon my hand. Rain was going to make uncomfortable, uncertain night-riding even more uncomfortable and uncertain. The storm came like a cloudburst. Hour after hour the motor toiled along through the roads hub-deep in mud and sodden sand; hour after hour our hopes rose and fell as we ran into a bit of well-kept road, only, after a few minutes, to find the car crawling through the mire again. Time after time would two of us—in the car were La Roche, Le Blanc, and myself—tumble out of our seats into the slush to lighten the car, the spinning rear wheels showering us with mud as the car forged ahead. Once the vehicle refused to budge. The motor throbbed, the wheels flew round, the mud splashed; but deeper and deeper sank the front wheels into the clayey road. Out with the clutch; then in again; out and in; with unavailing persistency. Things began to look black—as though the run would end then and there. But necessity is the mother of invention: we requisitioned fence rails and laid a track for the wheels to run upon through the mud. May the farmer to whom the rails belonged not miss them; they were invaluable to us in bridging the miry road at many a toilsome spot in that mile or more. We cast the fence rails yet awake when we were plodding our way through its streets, and only an occasional face cheered us on our way.

The miles slowly splashed by, into Utica, with no dimunition of rain or improvement of road, where we took on gasoline, water, and oil. It was only a few minutes' stop, but it served to whip up our flagging spirits, and, almost cheerfully, we set out for Syracuse, where we eventually arrived at 2:45 P. M., July 26.

I traveled by rail to Buffalo and by motor car to Cleveland; by rail to South Bend, Ind., and by motor car to Chicago; by rail to Bloomington, Ill., and by motor car to St. Louis; by motor car to Terre Haute, Ind., and by rail to Wheeling, W. Va., where commenced my last relay to New York City, a distance of nearly 600 miles and necessitating 103 hours in the car practically without sleep. Ten minutes after arriving in Wheeling, we were on the way for Pittsburg, reaching there before noon. It was scarcely past meridian when Le Blanc and I were off for York, Pa., by way of Bedford Pike.

We bowled merrily along mile after mile over hilly but fairly good roads, through Braddock and Greensburg to Youngstown, beyond which last-named town lies a story of villainous and treacherous roads. It

(CONTINUED ON PAGE 49.)

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THE BATTLE OF THE MASTER FORCES

By Charles Quincy Turner

CHAPTER IX.

The road from Zena lay, for the first seventy miles, through a perfect panorama of beauty, adorned with numerous fine palms and baobab trees in which nature has been so liberal in trunk and stingy in branches, and with gigantic acacia, of a bright sea-green color, the wood of which is used by the natives to light fires with. And here, too, they found the lordly mango, and oranges, in great perfection. Compton might well think he had got into a new country. On the map were many streams, but he had learned, before starting, that it was the season they were so dry that he would be fortunate if he did not have to dig in them for water, should he require it. After the first two hours the scenery became sterile, and the way rough, and stony, until Goveia, a Portuguese village, was reached. Beyond that was a country of short grass, followed by the gloomy somberness of a primeval forest, until the foot of the Gorgongoza Mountains was reached. The ascent to the tableland was gradual, as was the descent to the Pungue River through immense fields of corn and cultivated country, the first of many in thousands of miles' travel. The crossing of the Pungue River, here about a hundred yards wide, made it advisable to make this the end of the day's journey. The preparations for it interested the whole village, for three primitive dugouts had to be securely lashed together to make an effective raft. It was not worth while to take the wheels off and put on the paddles. This is the dreaded tsetse fly-belt, fatal even to the oxen, but it had no terrors for the motor car, and by mid-day Massikassi was made, a good hundred miles. Massikassi is another Portuguese village, in a singularly beautiful situation, looking up the valley of the Rovue, with mountains on either side rising 6,000 feet. Beyond this the travel lay across a series of ravines, which put the brake to its greatest test of the journey. Fortunately, by way of compensation, this was followed by grassy plains, and a road available by bullock wagon, up to the mining town of Salisbury. Here there was no doubt civilization had been reached, for enough liquor was piled, outside the saloons, to make half a nation drunk. One night was enough in Salisbury.



Photo by Dr. James Johnston. Copyright by Fleming H. Revell Co.

THE PREHISTORIC RUINS OF ZIMBABUE

The route now turned due south over a dreary plain of white sand, off which the grass had been recently burned; in fact, was still burning in various directions about Fort Charter, now nearly deserted. Beyond this the sand became deeper, and the fires more troublesome, but Fort Victoria was reached by noon. Here Compton was tempted to turn off the direct route, and ride fifteen miles southeast by east, to visit the prehistoric ruins of Zimbabue, a mazy labyrinth of awe-inspiring mystery, built on the top of a kopje by some Phœnician or Arabian conquerors, centuries upon centuries, maybe forty centuries, ago. This complicated and inexplicable castle, perched on the top of an inaccessible cliff, and surrounded by stupendous walls of dry masonry, 30 feet in height and 16 feet thick, is an ellipse, the greatest length of which is 280 feet. The courses, though of rough granite, are beautifully and evenly finished. This mystery in masonry, as perfect as the day it left its builder's hands, is stranger than anything evolved from the fertile imagination of the author of "King Solomon's Mines" and "She."

Turning his back upon this fascinating city of a long since dead and forgotten nation, Compton faced about on an almost bee-line for that newest development of the mighty future, and soon after sunset reached the city of his long-cherished hopes, Bulawayo. The sight of the glittering steel rails, upon which his motor car would bear him to his goal, was welcome to eyes which had not seen the like since leaving sunny France.

CHAPTER X.

The demand which Compton made on the railroad authorities at Bulawayo was a startling one, but the command came from headquarters, and must be obeyed. There was no gainsaying that signature. How the motor car was going to get along on such a roadbed, however, was another question. They had not long to wait to see. Out in their goods yard, by the side of the track, the motor car was jacked up in no time. The package which had reposed in the back of it ever since it left Tripoli, with the inscription "Bulawayo" on it, was opened. The road tires were removed, and out of the box came another set, flanged and fitted to the exact pattern of the iron rails! That's how the trick was to be done. And it was! Here and there, there was a slight delay, at some junction; but the driver who had been detailed to pilot them down the line, was an old hand, who had grown up with the system, since the days it was a little local runabout-railroad out of Cape Town. He knew exactly what to do to insure obedience to the magic wand, and station after station flew by, at a pace which amazed the old railroader. He had heard from some of the military engineers during the Boer war of the capacity which lay buried in the little heart of the motor car, but a sustained sixty miles an hour, hour after hour, with no more apparent effort than a dragon fly exerts, was a revelation to him. He caught the fever of the rush, and on some sections was entrusted with the wheel. Used as he was to flying through space, it was palpable that he was under the spell of a new magician.

They stopped for a few hours' rest at Kimberley, but were off by daylight, with a dash. As they neared their journey's end, the excitement became intense. Twice they pulled up, at junctions in direct communication with Cape Town, long enough to be assured that, incredible as it appeared, nothing had been seen or heard of the balloon. On they sped again, their space-devouring monster seeming to be alive with the thrill of contest. They would win; surely they must! Nothing could prevent it. But it is the impossible which happens: fifty miles from their goal they were signalled to stop!



Photo by Dr. James Johnston. Copyright by Fleming H. Revell Co.

BARGAINING FOR DUG-OUTS TO CROSS THE PUNGUE RIVER

What could it mean? The red flag which stayed their victorious rush was the flag of danger. From the top of Table Mountain had come the heliographic signal, that to the northeast their rival had been seen! Was victory to be snatched from them at the last moment? It should not be! Everything was thrown wide open. They would take their chance. Let the line be kept clear, and they would snatch the palm from the very skirts of victory. Expectation was soon changed to realization. There, away to the northeast, they could themselves see, hanging like a hawk in the sky over its quarry, ready for the swoop, was Lancaster and his "bird without wings." With a final rush, which would have unnerved a less daredevil spirit than Compton's the last five miles flew by in a whirlwind, such as

(CONTINUED ON PAGE 52.)

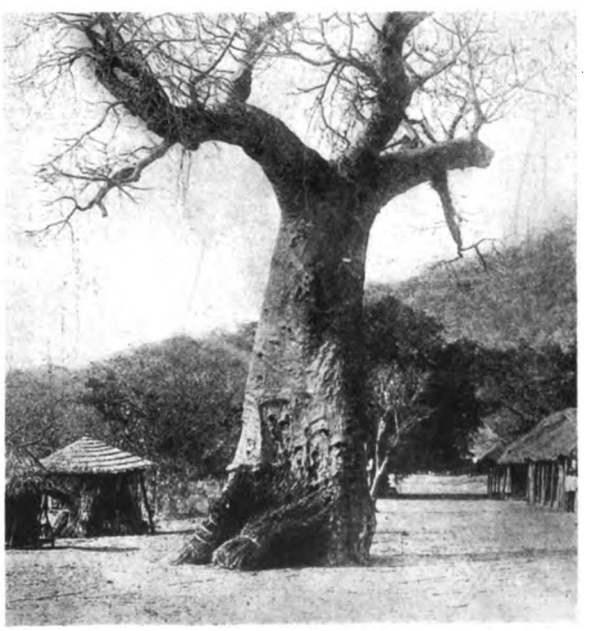


Photo by Dr. James Johnston. Copyright by Fleming H. Revell Co.

THE GIGANTIC BAOBAB TREE

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9000 KILOME

By



Northern Italy. It is here that the ascent to Switzerland actually begins. And, oh! behold the wonderful road. Isn't it a beauty?

"I GIVE a slow turn to the mysterious 'advance ignition' lever, and carefully regulate the admission of the petrol. The pace grows faster and faster, the delirious wheels cry aloud in their madness. And at first the road comes moving toward me like a bride waving palms, rythmically keeping time to some joyous melody But soon it grows frantic, springs forward, and throws itself madly upon me, rushing under the car like a furious torrent, whose foam lashes my face; it drowns me beneath its waves, it blinds me with its breath. Oh, that wonderful breath! It is as though wings, as though myriads of wings no eye can see, transparent wings of great supernatural birds that have their homes on invisible mountains swept by eternal snow, have come to refresh my eyes and my brow with their overwhelming fragrance!"

IT was on the road from Strasburg to Munich that these lines of Maeterlinck, recurring suddenly to memory, kept singing over and over again in my ears as if they were borne on the wings of the rushing wind. After climbing steadily, wearily upward from the valley of the Rhine, we had reached the highest point in the Black Forest, and a descent of forty miles lay before us. The road stretched straight and broad, hard and clear before us, sharply defined for miles ahead against the carpet of black woods that lay unrolled at our feet. And down it we flew at the pace of eighty miles an hour, the kilometre stones seeming to tick off the seconds, the whole vast panorama swinging toward us, the roar of the wind in our ears, and through it all I seemed to hear those lines singing the song of the motor car, the paean of speed! As far as the eye could reach stretched the unbroken forest in primeval grandeur and primeval solitude. We alone existed there, we and our vibrant car, our throbbing, space-devouring "hippogriff," and in that triumphant dash there surged through our veins the thrill of victory, the exhilaration of conquerors—and our victim was Space!

* * *

OF the many experiences that filled a 9,000 kilometre trip through Europe that one stands out in my memory, unique and delightful, but it is one of those memories that a man carries in his heart for selfish consolation amid the grind and turmoil of life and hesitates to share with others because he can never quite explain, never quite impart in the telling the aroma and the thrill that are his alone. But lo! it is now upon record, and if, with shut eyes, you can picture it to yourself, it will bring with it a breath of cool air and the odor of firs and pines.

* * *

FOR a week we toured through the chateau region of France. Then, returning to Paris, we set out upon a seven weeks' journey with Naples as our southern and Amsterdam as our northern limit.

Our car was a Hotchkiss of 20 horsepower—the second one that had been manufactured by the famous gun works in the suburbs of Paris. Its mechanism was delightfully simple, its power terrific. The clearest impression I can give you of its workmanship is this: in all those thousands of miles not a single mishap occurred, not a single break or disorder of any part of that machine that was made of metal. We ruined tires—there are roads in Italy beside which the mud-paths of Wisconsin shine in macadamized glory. We collided with an ox-cart that crushed our mud-guard as though it were of paper. Through neglect to re-fasten a bolt one of our searchlights was jolted off and crushed to a shapeless mass beneath the flying machine. But through day and night, over good roads and bad, up hill and down, in broiling sun and blinding rain our machine worked on, firm and true, without a hitch, without a jar, noiselessly, rhythmically, like a human heart. Every reader whose eyes scans this, doubtless has a favorite car of his own, and will, I hope, pardon me for registering this tribute to my beloved Hotchkiss. I mentioned its noiselessness.

It seemed rather uncanny, at first, after a long trip in a Mors machine to find myself flying through space without that accompaniment of puffing and choking and snorting sounds that had always seemed to me to be the natural mode of life of a motor car. Personally I prefer a little noise, not only to give added warning of your approach, but to heighten the impression of force and terrific vitality that is one of the charms of the sport.



In Holland. The lady is watching the automobile approach and in her heart it is piastres to pastry that she is longing to heave a brick. But the baby is content to watch the photographer.



On the road to Naples. The cattle turn instinctively to one side of the road to allow motor cars to pass. Wherein they show more intelligence than—oh, the Italians are all right, anyway.

But this machine of ours flew along with a endless hum like a gigantic bee, intensely so to the nerves, and, many a night, along th stretches of southern France and the level A coast, did I fall asleep beside the chauffeur, the motor murmuring in my ears like a lullab

* * *

WE journeyed from Paris to Nice by way of a Avignon and Aix-en-Provence, following Route Nationale No. 7 without touching Marseilles.

It took us four days, traveling steadily, through a beautiful fertile country, over a road whose perfection will always remain in my mind as a standard of what a road ought to be. And everywhere we met with courtesy. The people were accustomed to automobiles, and, for the most part, welcomed them. At night we were sure of finding a good inn and good food—a matter to which we became so accustomed that it was not until we reached southern Italy and looked back to it that we realized the e of our blessing. If ever I am rich I shall a motor car and wander for months over the of France, reveling in her inns and her cookin



A village in Northern G to show the clean and s of this region.

* * *

FROM Nice into Italy—glorious Italy! Smiling, careless Italy! Untidy, poverty-stricken Italy! It was sixteen years ago that I became inoculated with Italy—a virus which, once in the blood can never be wholly outlived—and when I saw the flag over the customs at Ventimiglia my heart began to bound with joy. But, alas! Oh, slovenly Italy, it needed no gay flag or boundary line to proclaim that we were upon your classic soil. We would have known it with our eyes shut—even the Hotchkiss seemed to know it, for that very Route Nationale which had run like a ribbon of spotless white from Paris, and was supposed to continue in unbroken line even to Rome, seemed to die suddenly at this spot, and we were bumping over loose stones, and into deep ruts, and, wherever the overhanging trees or



Bruno Lessing

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CS IN EUROPE

Lessing

ks intercepted the sun's rays, splashing into pud-s of last week's rain. And then a tire exploded d left us for an hour to revel in the dazzling auty of the Mediterranean at our feet, the Maritime ps above us, the white villages snuggled so cozily ng the blue coves where the hills sloped into the sea, and swearing at the ruin of that beautiful road. They were built by the Cæsars, those great highways of Italy, but I have seen many spots where the work of the builders seemed to have lain for centuries untouched. Still, it was Italy, my beloved Italy, and I forgave her.



is picture was taken merely appearance that is typical

* * *

SPEZIA, Pisa, Florence—where from our headquarters in the Hotel New York, which used to be a Medicean palace, and where we slept in rooms nearly thirty feet high, we made excursions daily around the countryside — Rome, Naples (and Pompeii, of course), across the Appenines, through Sulmona to ona, Rimini, Ravenna, Ferrara, Padua—where we the Hotchkiss a few days to go to Venice—then scia, Milan, along Lago Maggiore, through Pal-a to Canobbia on the frontier, where they gave back the 118 lire which we had paid as a deposit upon the car—and then the cross of Helvetia welcomed us into Switzerland. In northern Italy the roads were splendid and along the Adriatic coast they were good, but nowhere were they like that Route Nationale No. 7.



otchkiss car.

* * *

WHAT impressions does a motorist carry with him from Italy? Upon my memory it has left a kaleidoscopic jumble of good, mediocre, and atrocious roads; innumerable donkeys that flew into a panic when they saw the motor car, helter-skelter confusion of all vehicles in turning to right or left or not turning at all; towns of all sorts and sizes swarming with children who flocked about the machine, imperiling their lives with louds yells of delight and laughter; narrow streets where you could reach out from the car and shake hands with the astonished householders; a smiling, lazy peasantry that would gather around and watch the repair of a tire even if it took hours; good-nature everywhere, and, hour after hour, and day after day, a constant meeting with landmarks and names and places which are the common property of mankind, the heritage of history—they had been familiar to you since childhood.

* * *

WE reached Rome at 1 o'clock in the morning. A broken tire between Perugia and Narni—it was the fifth in Italy—had belated us, and during dinner a thunderstorm kept us idling several hours longer in the hope that it would pass away. But the storm showed no sign of abating, the inn at Narni was a hopeless, heartrending affair, and, with the rain pouring in torrents, the wind sweeping furiously across the plain, and the night black as ink, we set out for Rome. The road, fortunately, was good, and the rain had not affected it. Down a long avenue of poplars we burrowed our way through the storm, speeding at hardly more than 25 miles an hour, the searchlights illuminating the downpour ahead of us and fading away into what seemed an impenetrable wall of blackness. On and on the car hummed, over the same road that the legions of Augustus had trod, the same road by which the barbarian hordes had swarmed to Rome, the road over which Goths and Greeks, Lombards and Franks had each in their turn assailed the heart of Italy. What more fitting than that the black wall of night against which we seemed to be hurrying to our destruction should suddenly burst asunder and reveal, amid bright light, the dazzling splendors of the Eternal City? My eyes straining to pierce that inky curtain conjured almost unconsciously upon its dark expanse the panorama of the long line of Cæsars, in all their pomp and power, the flashing helmets of the Prætorians, the death struggles of the martyrs, the saturnalian revels upon which the barbarians—aye, even now they seemed to be rushing past us like ghosts—burst like avenging demons. And through the storm, rising above the distant murmur of the Forum, resounding clearly above the shrieks of the dying thousands and the roar of the amphitheatre's wild beasts, I seemed to hear a mighty host shouting in thunderous acclaim, "Ave Cæsar, Imperator!" There was a sudden, blinding flash of lightning. Directly ahead of us it lit up the white arch of the Porta del Popolo. A minute more and we had passed under the arch, and a thousand electric lights burst upon us. We were in Rome. And an officer of the octroi stepped forward and asked, politely:

"Have you anything to declare? Any gasoline in cans?"

* * *

I SHALL skip Switzerland entirely. A day's trip through Alpine passes, among snow-covered mountains, down wonderful, smiling valleys, and along the borders of those incomparable lakes would take a volume to chronicle. And the moment I think of one thing to record, another suddenly occurs to me, and that reminds me of another, and still another, and, "Alps upon Alps arise." Besides, I think I am entitled to at least one beautiful memory all in secret.



One of the approaches to Switzerland, where the foothills of the Alps begin to loom up and you climb upward through valleys of Dreamland.



See the donkey! He looks worried. He sees an au-to-mo-bile! What will he do? It is hard to say, but the la-dy on the side-walk had bet-ter get out of the way.

* * *

WE entered Germany practically in the outskirts of Basle in Switzerland. Our first day's run was to Strasburg, along the straightest, best-constructed and best-kept road in Germany. (It was built by Napoleon.) At Strasburg the entire population and about 20,000 troops had turned out to line our approach to the city. It was an impressive spectacle, the straight road dividing that immense, gaily-colored mass of humanity into two vast lines, between which, with the dust rising in huge clouds behind us, we flew at a speed of fifty miles an hour. Somewhere behind us, about an hour later, came the German Emperor. I think the show was for him.

* * *

STRASBURG, Ulm, Augsburg, Munich, Nuremberg, Wurzburg, Darmstadt, Mayence, Bingen, Coblenz, Bonn, Cologne, and over the border into Holland. From Mayence to Bonn the road ran along the western bank of the Rhine, past the rocks of the Lorelei and all those historic, picturesque ruins of castles, past the rich vineyards upon the sloping mountain sides, across the Moselle—through

(CONTINUED ON PAGE 49.)



In the Lake district of Northern Italy. You can't see the swarm of children in front of the car who are doing their best to get run over. But you can see the road. Look at it!

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LITTLE LESSONS IN MOTOR MECHANICS

By Victor Lougheed

Lesson No. 4.—CARBURETERS

A *Carbureter* is an appliance designed to supply a gasoline engine with an "explosive mixture," of air and vaporized fuel compounded in exactly the correct proportions to insure rapid and complete combustion, affording a maximum of power output and an exhaust practically free from smoke, soot, and objectionable odors. To insure these results, from an ordinary liquid fuel such as gasoline under the varying conditions of motor-vehicle operation, is a problem presenting great difficulties, and of the utmost importance in its solution. For it is a well-established fact that nothing contributes more to the flexible running of a gasoline engine than a properly-designed carbureter, together with good throttling and governing systems.

Surface Carbureters, Fig. 27, are the earliest and simplest form, and consist simply of a chamber, *a*, partially filled with the liquid fuel, *b*, and from which the heavy vapor due to natural evaporation is drawn by the suction of the motor at the end of the pipe *f*. On its way to the engine, this vapor is mixed with a number of times its bulk of air, entering at *c*, and then ignited. The chief advantage of such a carbureter is its simplicity and low price, and for this reason surface carbureters are much used upon motor cycles and popular-priced cars. An objection to this

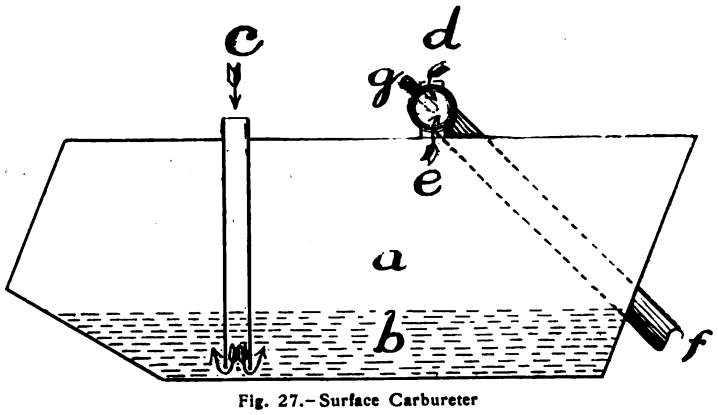


Fig. 27.—Surface Carbureter

type, however, is that carburetion, the process of charging the air with a proper percentage of fuel vapor, is not invariable under all conditions—whether the engine runs fast or slow, whether the air is moist or dry, whether it is cold or hot, and when the fuel itself varies in volatility and specific gravity, etc.

Most surface carbureters are controlled by the peculiar type of valve shown at *d, e, g*, Fig. 27. This valve consists simply of two circular openings—*d*, from the outer air, and *e*, from the tank *a*—both leading into the pipe *f*. These openings are so proportioned and arranged that as one is closed, by moving the lever *g*, the other opens. By this construction, the total quantity of gas passing through *f* cannot be affected by manipulation of the lever *g*, this lever simply controlling the proportions of the mixture. For this reason it often is called the *quality* lever, in contradistinction to the *quantity* lever, which usually is located at some point between *g* and the engine and acts merely as a throttle.

Spray Carbureters, Fig. 28, are now used almost to the exclusion of other types. The essential elements of a spray carbureter are a small fuel nozzle *d*, Fig. 28, projecting into an air pipe, *b e*, through which a current of air is drawn in the direction of the arrows by the suction of the engine. As the nozzle *d* is kept supplied with fuel by a pipe *c*, communicating with a tank *a*, there is a momentary atomizing or spraying action during each induction stroke of the engine, comparable to that of the well-known perfumery atomizer familiar to everyone.

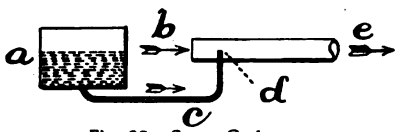


Fig. 28.—Spray Carbureter

A spray carbureter is not only very light, and positive in its operation, but it possesses the additional advantage of using the fuel from the bottom of the tank, thus avoiding the accumulation of the heavy and poorly-volatile residue that from time to time must be emptied out of a surface carbureter.

To insure proper working, the nozzle of a spray carbureter should be always nearly full of liquid, the liquid standing to within about a sixteenth of an inch from the top. At the same time, there must be no possibility of the nozzle overflowing. Thus, to keep the fuel in the nozzle of the spray carbureter at the right height, two systems are employed. One involves the use of some sort of a positive stop or valve acting upon the nozzle opening, and permitting the fuel to flow only at the actual moment of suction.

Such a carbureter is sketched in Fig. 29, in which *a* is the pipe leading from the fuel tank *b*, and *c* is the nozzle. The nozzle is normally closed by the needle valve *d*, which is pressed against it by the spring *e*. The air inlet to this carbureter is at *f*, and the incoming air, moving in the direction indicated by the arrows, impinges upon the disk *g*, which is mounted upon the shaft *h* of the needle valve *d*. The effect of the suction set up during the induction stroke of the engine is thus automatically to open the nozzle long enough to insure the motor receiving a full charge of fuel.

The other type of spray carbureter is called the *float-feed* carbureter, it being provided with a float chamber and a float by which a constant level of fuel is at all times maintained in the nozzle. A float-feed carbureter of typical construction is shown in Fig. 30, in which *c* is the nozzle, *f* is a pipe leading from the main fuel tank *b* to the float chamber, *d* is the float, *e* is a needle valve by which the float when it rises shuts off the supply of fuel from the tank *b*, and *g* is a pipe by which fuel passes to the engine. The pipe *a* conducts the fuel from the float chamber to the spray nozzle *c*, performing practically the same function as the pipes *c*, Fig. 28, and *a*, Fig. 29. It

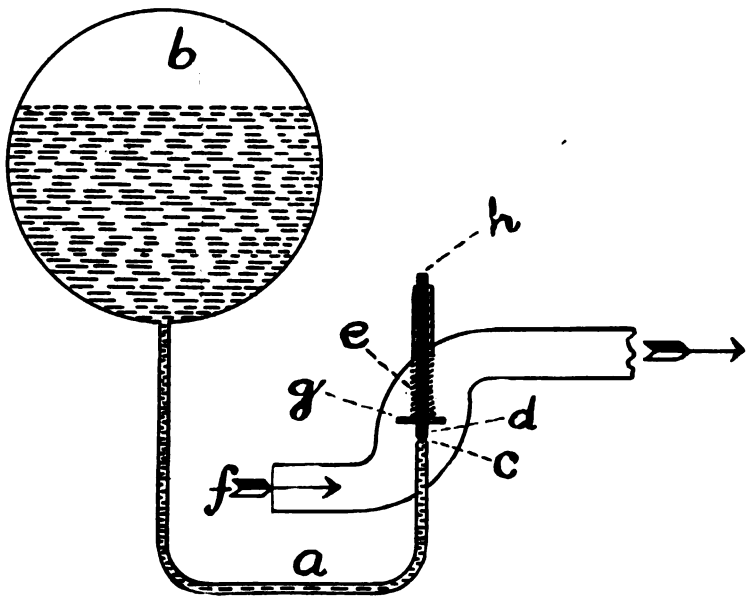


Fig. 29.—Carbureter Without Float Feed

is evident that with a carbureter of the type illustrated in Fig. 30, the fuel must always stand at a fixed height in the nozzle *c;* for when the fuel lowers, the float is permitted to fall until the needle valve *e* is opened, with the result that a fresh supply of fuel flows from the tank *b* to the float chamber. Likewise, when the float is buoyed up by the access of fuel it finally shuts off the supply by pressing the needle valve against its seat. With a carbureter of this type, the quantity of air and fuel drawn into the motor varies with the

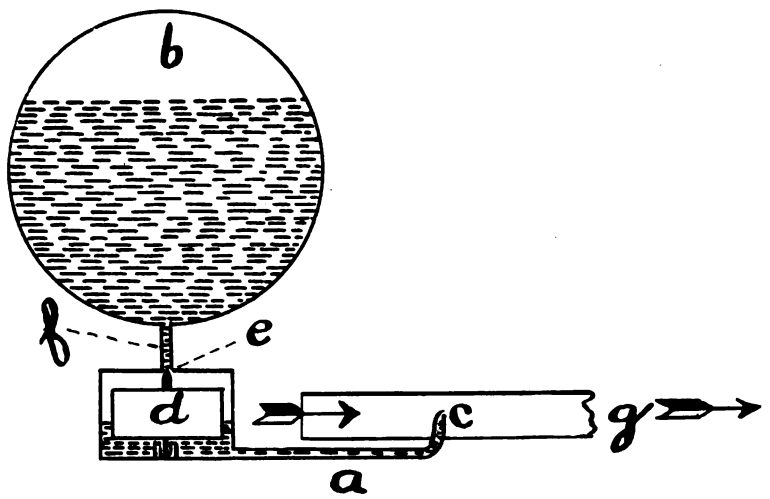


Fig. 30.—Float-Feed Carbureter

violence of the suction, which in turn changes with variations in engine speed. For instance, if the suction be increased as a result of a more rapid piston movement due to an increased engine speed, more air is aspired, but the increase in quantity of fuel atomized is disproportionately great, with the result that too rich a mixture is furnished. The reason for this seems to be that there is a "stretching out" action upon the air, so to speak, which attenuates it at high speeds, while gasoline, being inexpansive, flows with a rapidity directly varying with the force of the suction. Moreover, the momentum of the gasoline unquestionably causes it to flow for an appreciable time after the suction has ceased, a fact that does not hold true to nearly the same extent with air, because of its lightness.

Because of the foregoing objections to the ordinary type of spray carbureter, what is known as the *compensating carbureter* is at present much in vogue. In some instances, this kind of carbureter permits of a speed variation from 80 to 100 revolutions to 1,200 or 1,500 revolutions a minute, a range quite unheardof a year or two ago.

There are several well-established types of compensating carbureters. One of the commonest constructions is that sketched in Fig. 31, in which

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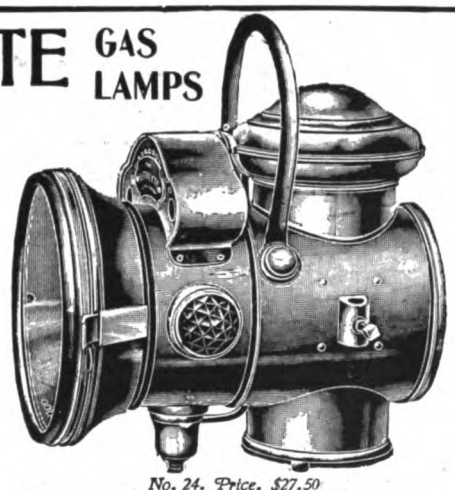
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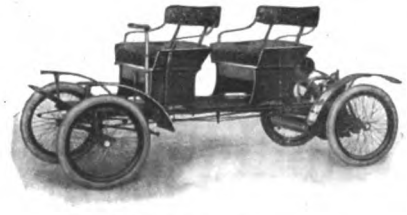
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b is an air valve, which progressively opens by the increased suction as the speed of the engine increases. In other respects, this carbureter is substantially the same as that illustrated in Fig. 30, the peculiar arrangement of the air valve being merely to compensate for the increased percentage of fuel that is drawn from the nozzle as the engine goes faster.

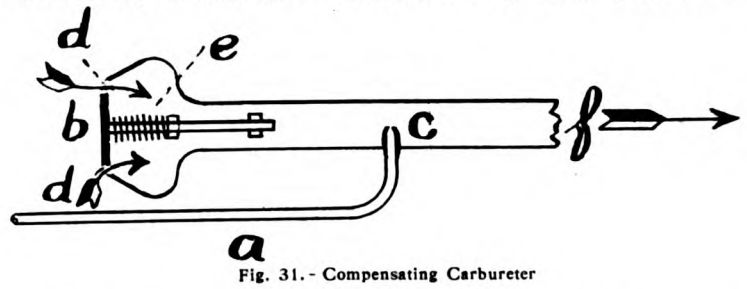


Fig. 31.- Compensating Carbureter

Referring again to Fig. 31, the action of this carbureter is as follows: As the air is aspired by the suction of the engine, as indicated by the arrow at *f*, gasoline is atomized from the nozzle *c* by the air passing over and by it. The air comes in at *dd*, around the edges of the disk *b*. This disk is so carried on a horizontal stem that it can slide to the right, but normally it is held in the position shown by the spring *e*. When the suction is increased, however, because of increased demand from the engine, the disk is forced to the right and the spring compressed in proportion to the violence of air movement. An increased air opening around the edges of *b* is thus provided, the main air pipe being swelled as shown where it surrounds the disk, to an extent that causes the increased air admission exactly the compensate for the increase in gasoline flow that results from increased suction.

A carbureter that attains a similar result in a decidedly different manner is illustrated in Fig. 32. In general features this carbureter is like the non-compensating type shown in Fig. 30, except that it has a serrated wire *b* located in its atomizing nozzle. The effect of an obstructed nozzle of this sort is to oppose a progressively-increasing resistance to the flow of the fuel as the velocity of that flow arises. In other words, the greater the suction, the more resistance there is in the nozzle, owing to the increasing violence with which the moving liquid impinges upon the teeth.

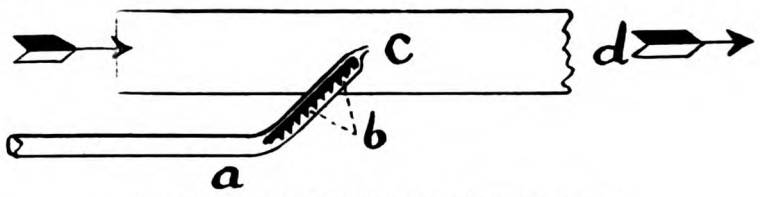


Fig. 32.—Compensating Carbureter without moving Parts

A type of carbureter that does not depend upon the varying suction for its compensating action is sketched in Fig. 33. In this carbureter, the pressure of gases diverted from the exhaust of the engine is caused to control an air valve *b*, similar in essential principle to that in Fig. 31.

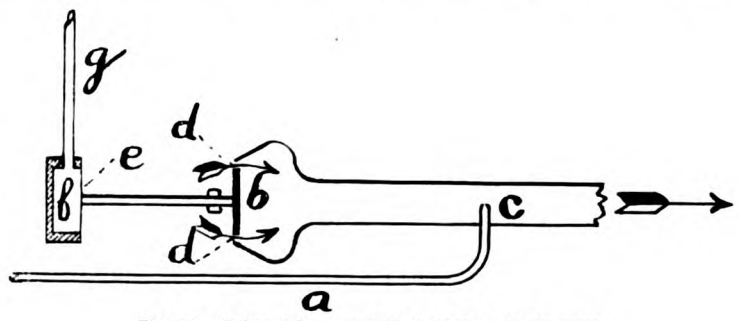


Fig. 33.—Exhaust-Controlled Compensating Carbureter

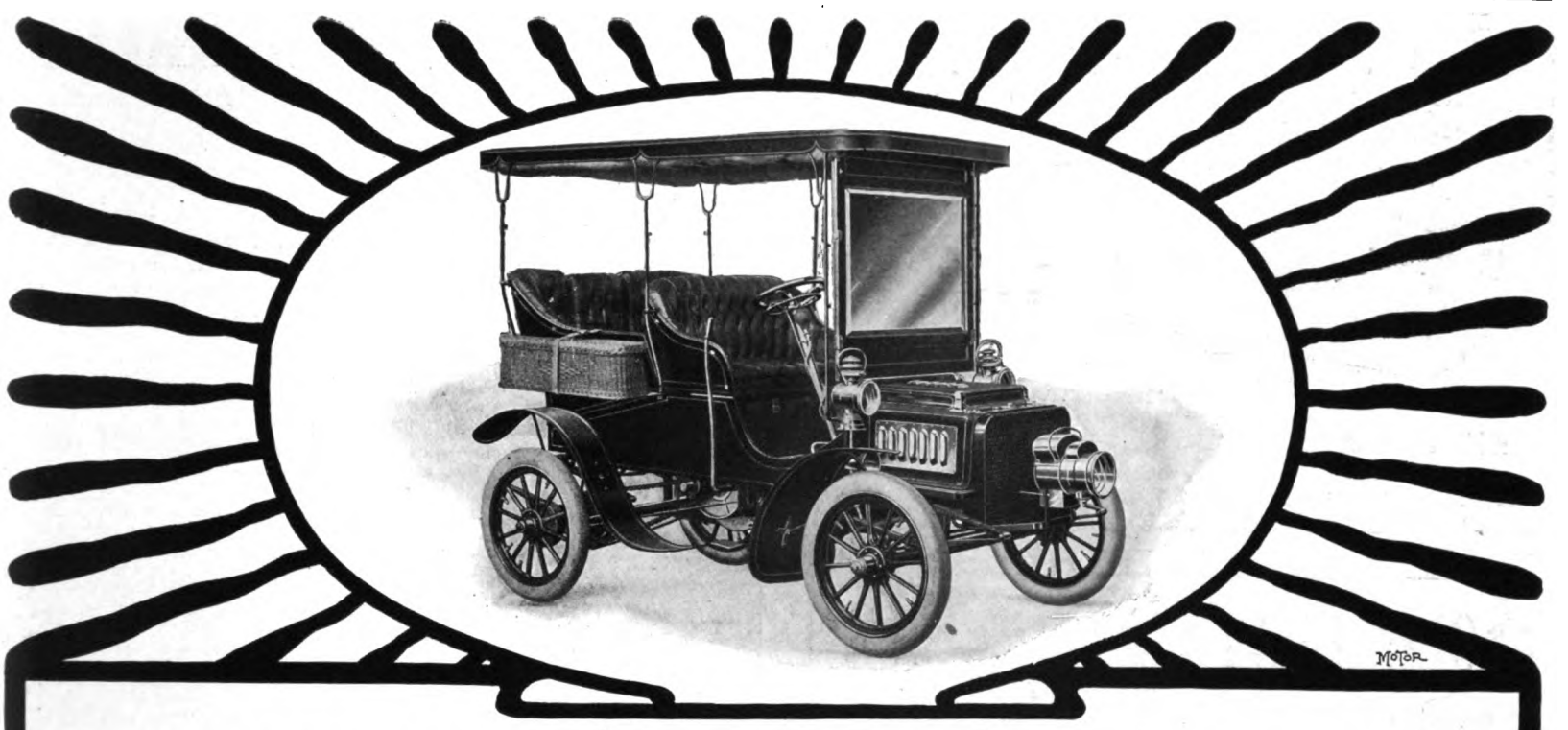
The gases come from the engine through the pipe *g*, and are conducted into the diaphragm box *f*, where, by pressing upon the diaphragm *e*, they cause it to bend to an extent corresponding to the pressure. This moves the regulating disk, *b*, and, the exhaust pressure in an engine being always in almost exact proportion to the degree of suction at any given moment, the compensating action with this kind of a carbureter is very accurate.

A carbureter similar to the foregoing employs water from the cooling system in the diaphragm box *b*, instead of gases from the exhaust. The pressure of the water being proportionate to the violence of its circulation, and the violence of the circulation being in proportion to the speed of the engine, this carbureter varies the mixture in direct proportion to the engine's speed. This is not theoretically as good a method as that described in the preceding paragraph, but has nevertheless been made to give excellent results under careful designing and application.

Besides the foregoing, there are several other types of carbureters, although these described are the most important. There is one variety of the surface carbureter that is known as the *wick carbureter*, from the circumstance of a felt or fabric wick being used to draw the fuel above its normal level and spread it over a great evaporation surface. Minor differences in compensating carbureters are almost beyond count, but the best known operate on the general principles already treated.

The next lesson will treat of "Ignition Systems."

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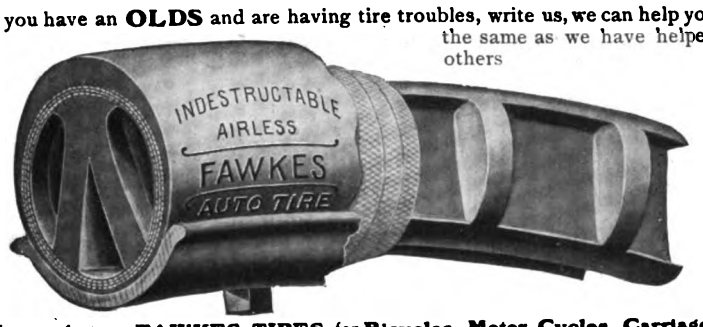
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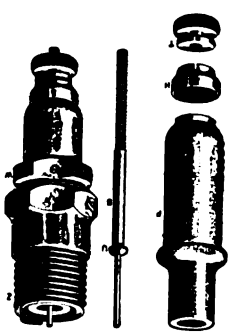
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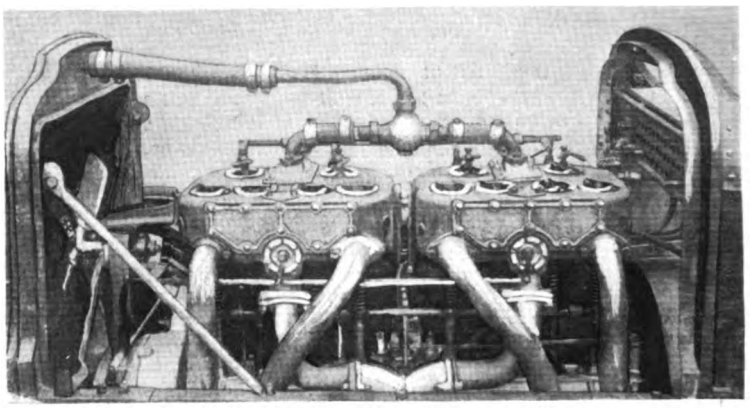
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DETAILS OF THE CUP WINNER

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The weight of the machine, as equipped for the race, with all accessories, but without occupant, was 2,094⅓ lbs. Its speed in the French eliminating trials averaged 61¾ miles an hour, and in the Gordon Bennett race 55 miles an hour. The maximum speed of which it is capable on a level is 84 miles an hour, this rate corresponding to an engine speed of 1,300 revolutions a minute.

The engine is of the well-known type having four vertical cast-iron cylinders cast in pairs, and the stroke and bore are 5½ and 5 9/10 inches, respectively, equal to an output of 80 horsepower at 1,200 revolutions a minute. Steel cylinders, while lighter for a given strength, and in common use on many racing cars, were not adapted because of the high friction they occasion, and the consequent difficulty of satisfactory lubrication between cylinder and piston. Both inlet and exhaust valves



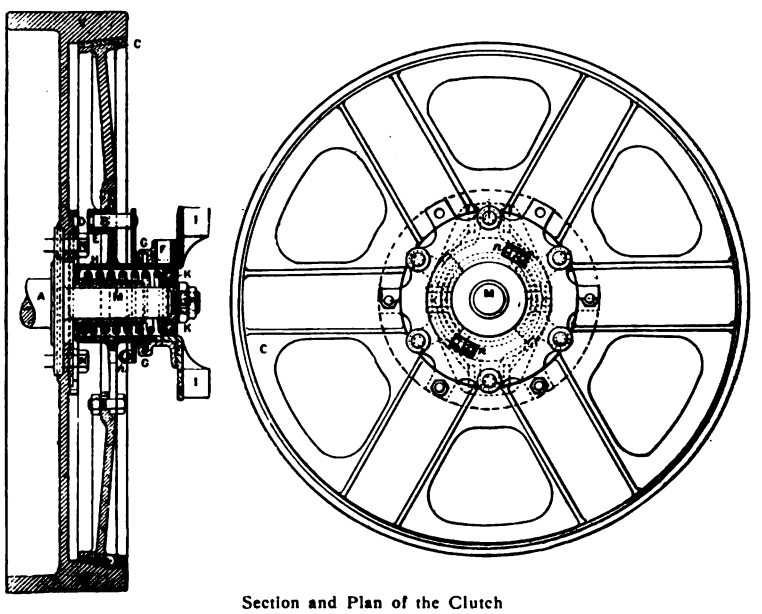
A Side View of the Richard-Brasier Engine

are mechanically actuated, and all are interchangeable, as also are their springs. The eight valves are located in a straight row along one side of the motor.

The compression is light—94¾ pounds to the square inch—and the flexibility of the motor is so great that it can be varied from 200 to 1,300 revolutions a minute merely by manipulating the throttle. This makes possible as low a speed as 21¾ miles an hour on the high gear.

The carbureter, otherwise of the ordinary float-feed, spray type, is unique in that it is provided with two inclined nozzles, arranged so that jets from them impinge upon each other at a common meeting point, much in the manner of the two jets from an acetylene gas burner. This produces a highly efficient vaporization and a most effective mixture. During the race over the German course, the average consumption of gasoline was one gallon to each eight miles. The gasoline tank contains 33 gallons, and is built around and behind the two seats.

A unique departure from generally-approved standards of construction consists in the absence of provision for varying the spark advance.



Section and Plan of the Clutch

Only two fixed ignition points are permitted, one slightly retarded, for starting, and the other at ¼ inch advance, for running. The theory of this is that the make-and-break magneto ignition is powerful enough to effect prompt combustion of the fuel at all speeds, it being contended, with some reason, that advancing the spark is simply an expedient to compensate for the effect of weak ignition.

A centrifugal governor is arranged to work on the fuel admission, and

(CONTINUED ON PAGE 70.)

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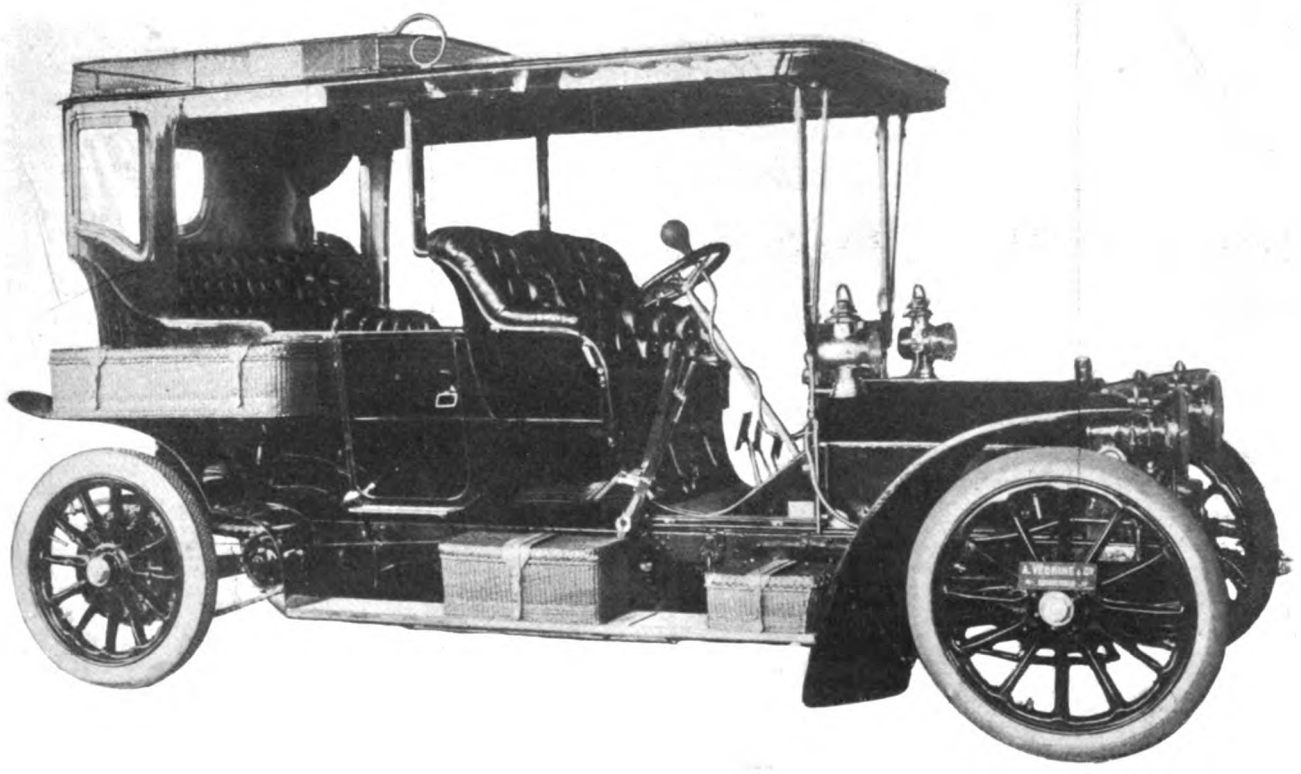
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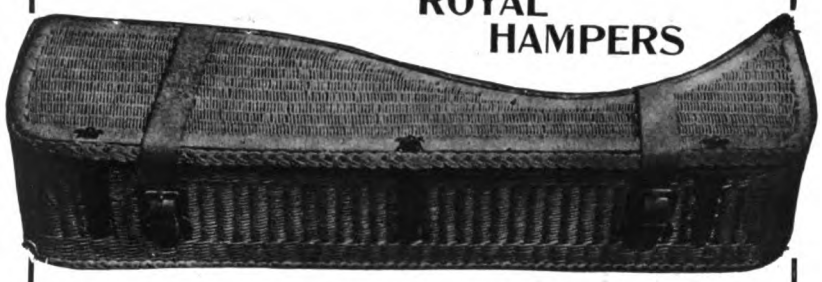
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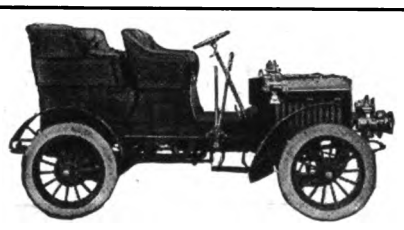
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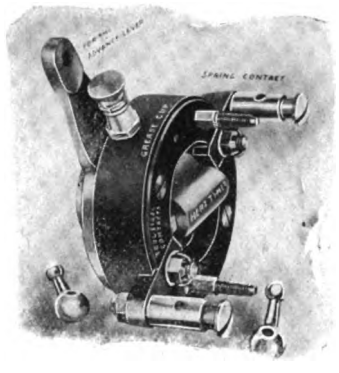
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A SENSATION IN BUGGY JUNCTION

By Fred E. Dayton

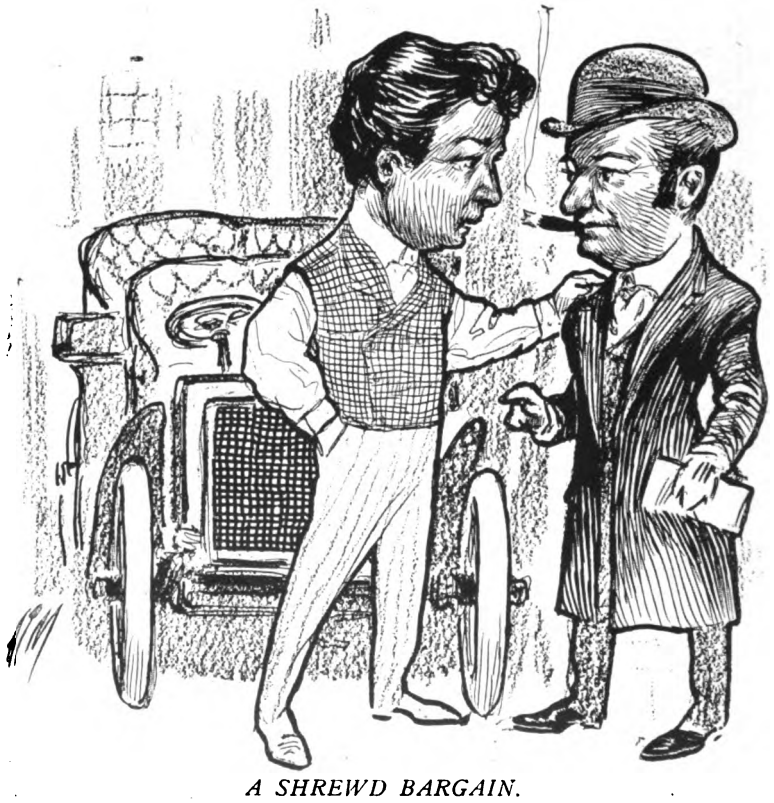
A big, red automobile pulled up in front of the Locust Tree Inn, and the occupants, two women, a man, and the mechanic, went inside to add a little ballast. Meanwhile word had spread that there was something new in town, and familiar haunts quickly became deserted. The venerable harnessmaker found himself without company; the cigar-maker had no one to read to him while he mechanically rolled rough looking weeds to pack into boxes marked "Pride of Havana"; the livery stable was left to care for itself, and the loungers in the glass factory stole away from the glare of the white heat. In front of the hotel and looking intently at the ponderous road leviathan was a gaping, curious, open-mouthed and eager-eyed crowd.

A freckled and begrimed faced boy, with red, close-cropped hair, had dared to pinch his thumb into the rubber horn, the escaping sound of which brought cries to "get away from thar." The aged constable was decrying the fashion of smearing the number plate with grease, which caught all the flying dust particles, making it anything but easy to distinguish the official numeration of the vehicle, while comments on the general design and individual tastes as to color schemes were voiced on all sides. The mechanic, who had bolted his roast beef and mussed up his ears in pie, had returned to the car while the owner and his guests waited inside for the less speedy service of a private dining-room. The mechanic knew that he had two duties to perform and he had hurried from his meal to oil up and answer questions. Grease cups were filled with the soap-like lubricant, a copious draught of gasolene was drank by the copper tank beneath the seat, and a handful of waste was rubbed over the shiny parts.

Then the mechanic was at liberty to look particularly knowing and answer the fool questions that were fired at him with the rapidity of an automatic gun and with the regularity of a clock ticking. The ice of reserve was broken by the village cutup, the barber, who had awakened from a doze in his ingrain, carpet-covered, walnut-frame chair by the reverberations of the four cylinders while their power was not being used, and before the spark had been switched off. He wanted to know if that particular "automobile was 'lectric or steam." He seemed satisfied when informed that it was of the gasolene, four-cylinder type and of 60-horsepower. The liveryman, with a broken neckyoke in his hands, asked if "Sawmill Hill had been surmounted."

A bricklayer, with his white canvas bag borne over his shoulder and a level protruding through the rope handles, inquired the cost, and then went into speculation as to the truth of the many thousand-dollar answer. A long and gaunt, knee-sprung rustic, with a wisp of goshding-it tickling the white bone buttons of his blue jumper, vouchsafed the suggestion that "a rich man must own her" and was declared correct. The Methodist church sexton's wife gave it as her opinion that "one of the ladies was the gentleman's wife and the other his sister," all of which was put down as painfully accurate by the chauffeur.

It was while Will Sloan, the station agent, was inquiring the speed ability of the motor car that the owner and his guests emerged from the Locust Tree Inn and stowed themselves into the front seat and the tonneau. The mechanic cranked the purple lady and Buggy Junction took up the thread of its daily life.



A SHREWD BARGAIN.

"Will you throw in the lamps and the accessories?"
"I can't do that, but I'll throw in the clutch."
"All right, I'll take the car."

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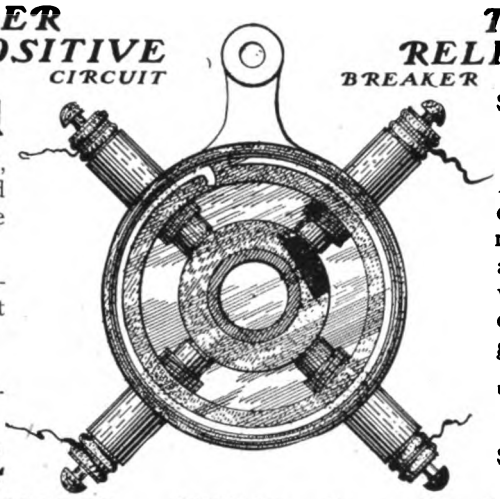
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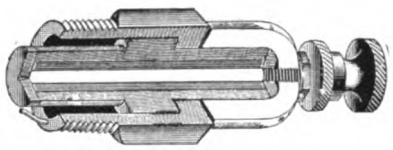
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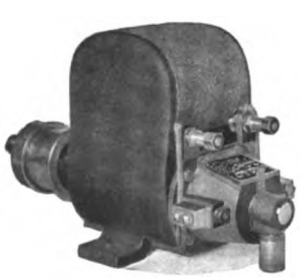
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oughly enjoy the 38-mile drive from Leadville over Twin Lakes and Granite, along the east side of the Arkansas River, and thence on to peaceful Buena Vista through the west side of the valley. In the vicinity of Granite, the shelf road is narrow, however, with an occasional turnout place or bastion to allow teams to pass, and while the surface is hard, it is well to look out sharply for stones that may have fallen down from above. A slanting bump against such an obstruction is uncomfortable so far above the river as the road here runs in places. The first few miles after crossing the river, beyond Granite, are a rather wearisome battle with sandhills overgrown with scrub oak, and farther down the valley, as it happened, there had been a cloudburst the previous day, which had washed away culverts and bridges.

The last six miles to Buena Vista are hard and smooth, and spite of some dust, they can be covered in a scant half hour.

After roaming for three hours over blind timber trails the next morning, trying to find the right road over the Park Range to Bath, we were compelled to return nearly to our starting point for new directions. The crossing of the mountain involves a rise of 1,100 feet, but the road follows the railroad closely and presents neither difficulties nor attractions worth mentioning. At Bath you look out over a plain of salt marshes where one fork of the South Platte River has its beginning.

The first view of Pike's Peak is obtained at a distance of nearly 50 miles. The nature of the landscape is shown well in the photo-engravings. It was once heavily timbered. What is seen now is all second growth, as shown by the stumps of the primeval forest still remaining. The road is good, the scenery pretty, but not imposing. After reaching Florissant, for a real taste of rough mountain motoring a turn can be made down south toward Cripple Creek, but an easier route is along the Colorado Midland Railway and into the luxurious Ute Pass road between Woodland Park and Green Mountain Falls. This fine mountain boulevard with its smooth surface and steady descent to



EARLY MORNING START FROM BECK'S RANCH, EDWARDS P. O.

Cascade, Manitou, Colorado City and Colorado Springs, has all the charm of an elegant suburban driveway.

The 75 miles from Colorado Springs to Denver afford a pleasant drive, which can be easily made in four hours. To one coming out of the West, the continuous flank of mountains and foothills on the left of this stretch, its fine and varied views of Plum Creek Valley studded with thriving farms, and its cozy summer resort towns, combine into one long, drawn-out farewell to the Rockies. The plain to the right, unending and merging in a gray monotone level with the faraway horizon, clearly pronounces the good-bye of final parting, while the few huge buttes in the foreground—one of which gives the town of Castlerock its name—by their strange contrast with the endless prairie, stand unforgetable as Nature's last outpost guarding the treasures of the mighty mountains.

The scene changes completely on leaving Denver, following the Kansas-Pacific Railway to Bennett. Only a few miles out of the capital, in this direction, it is easily possible to forget that a big, rich city with all the luxuries of civilization is near, or that charming scenery with smiling valleys and shady villages nestling in the lap of frowning mountains were passed only the day before. At Bennett, where we turned northward, begins a series of ranches fenced and gated without regard to the highway. Every few minutes you must get out of the car and pull a barbed wire ring off a gate post to which it sticks stubbornly. Frequently you must run through corrals crowded with cattle, but while the bovines are slow to move out of the way the people are nice and accommodating—so long as you close the gates after you.

We stop at Fort Morgan, a thriving temperance town, where they were putting the finishing touch to a big reservoir by which it was hoped to corner the water, much to the prejudice of the districts farther down stream. Starting about 4 o'clock the next morning for Sterling we passed through Brush, Hillrose, Mareno and Atwood before the population was well out of bed and covered the distance of 51 miles in just three hours. At Julesburg the water in the river gives out and the change in the landscape is nothing short of appalling from an economical viewpoint, but the roads are higher, drier, and faster.

A couple of miles out of Julesburg we enter the State of Nebraska, where the chief interest of a transcontinental journey ends, as the roads from now on are well traveled and better known.

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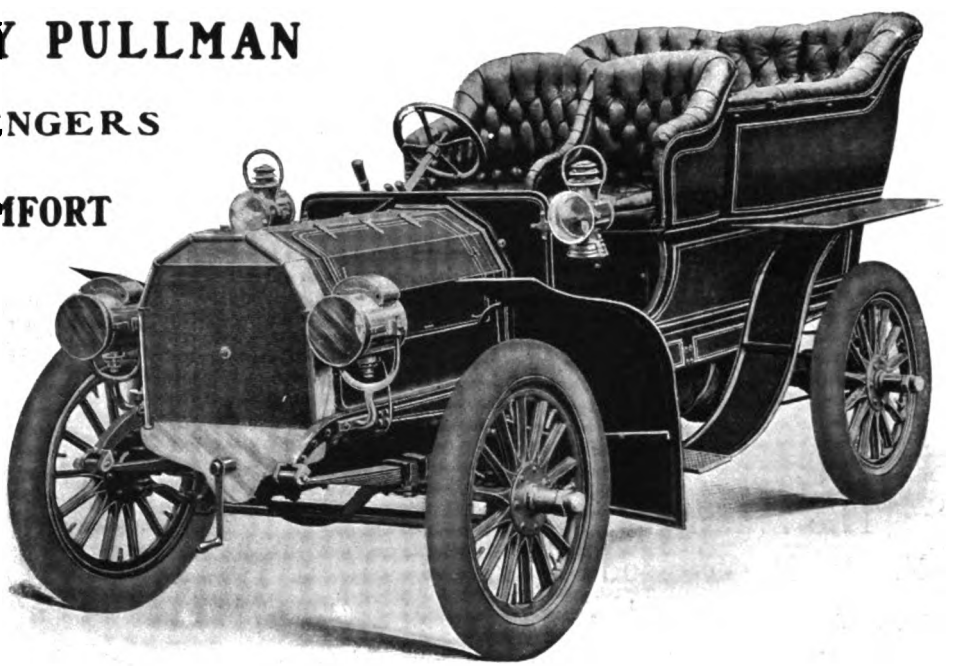
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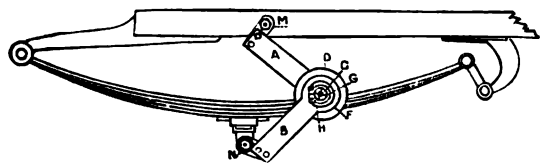
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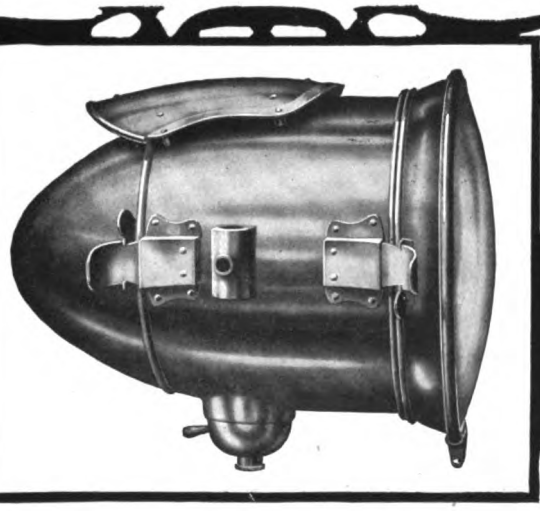
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Across the Centennial State

(*Continued from page 20.*)

country north of the town, as far as the sources of White River, 40 miles away, or Bear River, 70 miles, are among the diversions possible in this place.

Emerging from the canyon after leaving Glenwood Springs, the confluence with the Eagle River is encountered, and may be followed for two days, a pretty, clean-watered stream throwing white spray merrily over the boulders jutting out of its rocky bed, never placid, but also nowhere torrential, in so far as we could see. At Wolcott a stage road leads north toward Egeria Park and is said to be passable for motor cars, but none had ever been driven over it last summer.

To Red Cliff, along the terminus of the railway, is only 20⅝ miles, and on the way the hills are numerous and many of them steep. Pine and spruce begin to line the course of Eagle River. Ten to fifteen per cent. muddy grades are hard on the tires. After leaving the town of Minturn the road dips to the river level, and on the next three miles to Gilman it rises 950 feet, to an elevation of 8,980 feet. The barometer



A PIECE OF BLASTED ROAD NEAR SHOSHONE FALLS

showed 21.45 inches, so there now is lost nearly one-fourth of the ordinary atmospheric pressure and so much less air is taken into a cylinder at each suction stroke, but the power of an engine is not noticeably reduced. Gilman is perched like an eagle's nest on the top of a cliff that towers, promontory-like, in a bend of the river. After climbing up there over a very steep road close to the precipice you discover a building in front of you which looks like a portal to a fortress. It spans the road and affords the only ingress to the town from the west. We drove through the building without knowing what it was and why it was there, and, as it was just 12 o'clock, felt sure of dinner at the hotel. There were two. One was closed and the other was not in position to set a meal for strangers when they might just as well go on to Red Cliff. The whole town was practically on short rations, if not starving. The surface mining had given out and deep mining had not been started. They were living in hopes that the money and machinery soon would be forthcoming. A few years ago a young Napoleon of finance had built the "Old Concentrating Mill"—"old" now only because it was idle—and for a while there had been great activity and money in circulation, but the scheme collapsed, and the Napoleon decamped. Even so, the inhabitants, now in a worse plight, remembered him with affection. It was this abandoned mill that formed the portal to the hungry eyrie crowning a hill full of gold, lead, silver, and iron, which was yet to make them all rich by the next throw of the financial dice. Those left in the town were really only the sentinels sent to watch the property, while the breadwinners had gone to other parts temporarily, to earn wages. The road to Red Cliff runs like a gallery around the southern exposure of Battle Mountain, where Utes and Piutes met in mortal combat, according to the legends. A turn of the road gives the first glimpse of Red Cliff, 400 feet below, which soon develops into a birdseye view of the whole town. It is the county seat and full of legends and curios.

Being in demand all through the State for small stationary engines, gasoline is easily obtained almost anywhere, though not in better quality than 64° or 68° Baumé, and in this respect the motorist is better situated here than in many Eastern localities.

The landscape between Red Cliff and Leadville is a surprise. The grades are deceiving, and make arduous driving when wet. Near Pando, a typical railway town situated near the Homestake Flat, a well-watered, level meadow three miles across looks more like Illinois, but for the background, than like anything expected at 9,500 feet altitude near the Continental Divide.

We soon hurried out of Leadville, anxious to reach Buena Vista the same day. The street to Malta proved as good as a racetrack, and, having a slight down grade and little traffic, invited to a speedy spin.

With the Saguache Range of snowy peaks clearly in sight, an average down grade of 1½ per cent. for the whole distance, and a fair road, interrupted only by a few miles of sand hills, any motorist may thor-

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The Story of a Non-Stop Observer

(*Continued from page 34.*)

is an everlasting disgrace to the state of Pennsylvania—that Bedford Pike!

A few miles from Ligonier, which lies in a valley west of Mount Laurel, where we were bumping down a mountainside, we came suddenly upon a washout in the road, approximately 30 feet wide and 40 feet deep—so suddenly, in fact, that only "brakes on hard" saved us from going over the edge. The car stopped only inches from destruction to itself and death to us. Le Blanc and I silently looked at each other for an instant, but that silent glance was an unspoken epigram. After a survey we found that the only way to reach the continuation of the road on the other side of the washout was to retrace our path up the mountain for about three miles and strike boldly into the forest down into the gully caused by the washout. The road was too narrow to turn the car about, so we had to back the distance up the hill. Nearly an hour later we plunged into the trees and found a path barely wide enough for the vehicle, down which we crept into the washout. Half an hour later we tumbled through Ligonier.

The road out of the town is not equalled anywhere in the world. It is beyond comparison. Besides being very steep in its ascent of Mount Laurel, the road tilts first toward one side, then toward the other, and winds in and out, as though selecting the worst places up the mountainside for its progress. Its surface consists of jagged stone boulders varying from ten to thirty inches or more in diameter, packed closely together, so that in the dim light of the falling dusk it looked not unlike what one could imagine a largely magnified strip of sandpaper would appear to be. I cannot describe that so-called road.

We did not ride ride Mount Laurel; we slowly crashed our way upward. It seemed as though the car must surely be disembowled, for every few feet it came down with terrific force upon some boulder larger than the rest. The road was too narrow to choose a path or to avoid a big stone; we had to take everything as we met it. First the front axle, then the rear axle, then the under-body of the car, would strike some unyielding, projecting part of the surface. Mile by mile, the motor dragged the tossing, crashing car upward. The strain upon Le Blanc's arms was beginning to tell upon him, and his breath was sobbing thickly in his throat. At last we had reached the top of the mountain—six miles above the valley, a steep, rough, terrible climb. Suddenly there was a crash louder than the others, and Le Blanc threw out the clutch and put on brakes.

"Spring broken?" I asked, jumping out.

"More than that," he answered laconically.

We lit the kerosene lamps and made an examination. The upper leaf of the righthand front spring was cracked, and the clamp bolts securing the axle to the spring had been cut in half as though with a powerful knife. We had immediately set about a repair, which would not occupy more than fifteen minutes, when the two lamps died out one after the other. We turned to the big searchlight, but found that our can of carbide had been lost—no doubt tossed out of the car on the upward journey. What to do, we did not know.

Then Nature seemed to conspire against us. A thunder-storm suddenly broke. It came in a sudden onslaught of wind under which the trees about us bent and moaned like slaves whipped to their labors. The lightning, coming nearer and nearer, lit up the forest with a weird, ghastly light. Occasionally a crash of thunder louder than the others told us that something not very far off was struck by the terrible element. The heavy clouds above us sunk lower and lower, until it seemed as though I could touch them with my hand; the tops of the trees surely traced a mark upon their fateful bosom.

The lightning was now so rapid that the whole view was lit with a continuous, though flickering, light; and the thunder crashed and pealed unintermittently. The din was terrific. We were in a battle of the clouds and the artillery of the gods wrought terrible havoc. In the battle-light we saw a tree fall, stricken by the fateful bolt of Jove, and simultaneously heard a peal of thunder whose very echo drowned the rest. Nothing could escape destruction; it seemed as though the storm was bent upon razing the mountain. How then could this throbbing, pulsing little motor escape?

But it did. The furies spent their wrath; and then came a deluge. The road, as though by the touch of some magic wand, became a mountain torrent. Little falls and cataracts streamed past our trembling car. We—Le Blanc and I—stood speechless, but thoughtful, wet to the skin, shivering in the wind-driven rain, waiting patiently—for dawn. Those heavy-footed hours! but they went, as all must go finally.

With the first of twilight we busied ourselves, and by full dawn were ready to make the repair necessary to continue. What need go into further details of our trials—how our jack was broken, how Le Blanc had to walk down the mountain for some bolts, how—nerve from crown to toe—he succeeded finally, how we picked our way cautiously down the other side of the mountain, how we lost our way, and how finally the car dragged us, weary and worn, into Chambersburg, where Le Blanc was relieved by La Roche. And with all this havoc-wrecking road behind, there was only one tire puncture to record. The same Michelins which carried the car out of New York City carried it back again. The feet of the motor—the tires—are a very important part of its equipment and these feet stood well—very well.

Not quite two days more saw us in New York City, welcomed as New York loves to welcome a victor. At 11.33 A. M., August 9th, the car drew up before the Automobile Club of America clubhouse and the motor was stopped for the first time.

This is what was done: a car traveled over 3,500 miles of the worst roads in the world without stopping the motor, and accomplished a tour of fifteen days and two hours' continuous running.

9,000 Kilometres in Europe

(*Continued from page 37.*)

the delightful land of Rudesheimer and Johannisberger—a land everywhere prosperous and happy. In passing through one of the little villages on the Rhine in this neighborhood, a woman stepped out of a house, and, deliberately measuring her aim, spilled a pail of water over us. It was our first experience of that kind, and we raged. But the chauffeur, wiping the water from his eyes, remarked that the woman had probably been half choked by the dust of some speeding motor car or had had some experience with reckless drivers that had embittered her against all motorists. Which, after all, I thought was a wise way to take it. The Germans, as a rule, resent motor cars, but are not actively hostile to them. They seem content to take it out in surliness of manner and black looks toward the passing cars. But, at a pinch, they will quickly come to your help if—and it is an important "if" in Germany—you are courteous.

* * *

IN Holland the general attitude of the people toward motorists is one of boorish discourtesy. This is not said lightly; in fact, I hesitated a long time before I decided to express what was not only my own opinion, but one which I had heard from others who had had even more disagreeable experiences along those wonderful brick-paved roads than had befallen us. But, in fairness to any reader who should ever contemplate a motor trip through Holland—and it is a trip that is well worth while—I feel it a duty to warn him against the incivility, the rudeness, and, at times, the violence of the Dutch. The best that he can do as a safeguard is to take with him a native guide or courier, not merely in the capacity of interpreter, but as a buffer upon whom the irate populace can vent its hostility.

"If you knew what our people have suffered from motor cars," said the proprietor of a garage in Amsterdam to me, "you would hardly blame them. All the laws against fast speeding disregarded, reckless driving through the most crowded streets of every town, damage and injury on the highways without compensation or even explanation, the loud blowing of horns on deserted streets in the middle of the night—I tell you I often wonder that they don't put a stop to motoring entirely."

The explanation was unquestionably sound, but—the same story could be told in France, and yet they do not mob cars there; and, when they arrest you, they at least do it politely.

* * *

BUT it is a beautiful country, one of Nature's daintiest creations, where the sun and the moon and the sky seem to take the greatest delight in revealing their manifold charms, where the green fields and the clear-cut trees and the rushing rivers and the sluggish canals all seem to have been put in their place to conform to an artistic landscape design—for, truly, Holland is a vast picture. Its cattle are picture cattle, its myriad windmills seem to stand as alluring models to attract the artist, its sunsets, the haze that rests over its fields, its farms, its spick and span houses, its costumes—all seem to belong to the paraphernalia of pictorial art.

Amsterdam, Haarlem with its sea of vivid-hued tulips, Leyden, The Hague, Scheveningen—where the fragrance of the sea burst on us like whiffs of incense—Delft, Rotterdam, Bergen-op-Zoom, and across the frontier of Belgium.

* * *

AND Belgium, too, I would like to skip. My whole recollection of it is a procession of outraged feelings along the worst and most destructive roads in Europe and through an intensely uninteresting country. Perhaps, if the road had been better the landscape might not have had so oppressive an effect upon me. As it was, I journeyed from Antwerp to Namur—which is practically across the kingdom—with my eyes glued to the road, my heart in my mouth, bumping, sinking, jolting, skidding, sliding, and scratching along the most abominably preserved road in Europe. Miles and miles of it were paved with blocks of stone as big as your head, half of which were out of their place. And when the car sunk into the holes it made me shudder. There is a well-known road that is paved with good intentions. It—well, it can't be worse than the road to Namur.

* * *

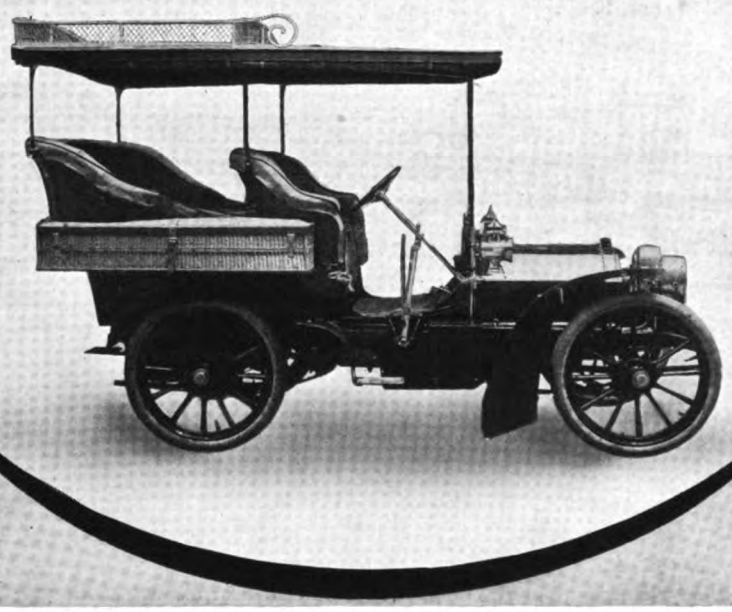
ACROSS the border, and in France once more! I don't remember the rest of that day. In the joy of flying along one of those wide, white, hard, straight, smooth roads again, I forgot everything else—made no notes—observed nothing—listened only to that wondrous song of wind and sky and sweeping land that nature chants only into the ears of the motorist.



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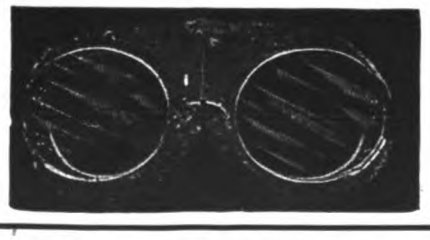
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Society and Its Meet

(Continued from page 27.)

enable sentinels and troops to judge what military honors are to be rendered when the imperial automobile comes in sight.

* * *

The Marquis of Northampton is one of the most enthusiastic motorists in England, and has recently had a number of rather exciting adventures during an automobile trip on the continent. In Germany a difference of opinion with the police as to the rate of speed at which he was running his machine, assumed such grave proportions as to move the guardian of the law to draw his sword upon the peer; while in France a bicyclist ran his wheel full tilt into the Marquis's 40-horsepower automobile, and naturally came to dire grief. For several days the man's life was in danger, and the Marquis was held by the police, in view of his possible indictment for manslaughter. Fortunately, the bicyclist recovered, and was induced, by a substantial honorarium, to withdraw all charges against Lord Northampton, who announces that from henceforth he will restrict his motor tours to the United Kingdom.

* * *

People frequently ask what objects are served by the motor races which succeed one another with so much frequency. It may be as well to explain that experience has shown that each great race has had the effect of making a number of converts to the sport. Thus, the international Gordon Bennett race at Homburg led to orders being given by the people present at the contest for some 300 machines, among others by the Kaiser, by the Duke of Ratibor, and by Baron Henri de Rothschild.

* * *

King Edward does not make any pretence of keeping within the legal speed limit when motoring, taking full advantage of the fact that by the terms of the constitution he is above the law of the land. Thus, just before leaving London for the season, he motored down from town to Newmarket, a distance of seventy miles, leaving Buckingham Palace at half-past three, and reaching his destination at six. The readers can easily calculate the rate at which the King must have run his machine in order to cover the distance in such quick time. The trip was additionally interesting by reason of the fact that it was the first time since the reign of Queen Anne that an English sovereign ever made the trip from London to Newmarket by road. King George IV never set foot upon the famous heath, but the Stuarts were passionately fond of horse racing, and good Queen Anne had inherited this trait, and visited Newmarket several times. But it is King Charles II who was of all English rulers the one who was most conspicuously identified with Newmarket, where he not only witnessed the races, but actually took part in them as gentleman rider.

* * *

The Duke of Westminister, and Lord Howard de Walden, who enjoy the distinction of being the two wealthiest peers of the United Kingdom, are among the recent converts to the marine motor. The Duke of Westminster has a motor launch about 35 feet long, fitted with a 60-horsepower motor. She has a comfortable little cabin amidships, and is intended for carrying shooting parties in the Highlands, where the Duke invariably spends the autumn. Lord Howard de Walden's boat is built more with a view of racing, and he was the only British private competitor in the recent contest for the International Marine Motor Cup. His launch, *Lance de Fer,* is of nickel steel, 40 feet long, fitted with twin motors of 150-horsepower each, the reversing gear being provided by a separate 8-horsepower motor. He is still unmarried, and is the son of a peer whose eccentricities and extravagancies of one kind and another frequently brought him into contact with the London police. Indeed, on one occasion he was arrested on the vulgar charge of wife beating.

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The Battle of the Master Forces

(*Continued from page 35.*)

only to be seen ordinarily when one of the giants of the track finishes a cyclonic wonder. Compton pulled up, his task completed, just as a little silken banneret of the Stars and Stripes fluttered out of the air at his feet, and Lancaster, with the swoop of an eagle on silent, but terrible wing, settled the claw-anchor of the Ariel on the ribbed roof of Table Mountain!

The honors were divided!

The Master-Force of the world had conquered on land and water, and air. A new mechanical era had been inaugurated!

The prize had been encased in "the silver casket of equality." Neither the Queen of Beauty could banish from her royal favor and court her knight, nor send him into deserts wild on parlous service. Nor could he claim his hostage, as a right; and though in very truth it must be admitted, neither seemed to so desire, yet neither would abate or relinquish their claims. If neither, they each persisted, had won the right to freedom, so neither, they insisted, had lost the right to sentence the other.

"The court of *pie poudre*" must decide; and it did!

Day by day, as the good ship *Donald Castle* left the Southern cross behind it, the case was argued between them both, with wondrous legal cunning and befitting warmth, and ere the white cliffs of Albion portended the end of the days of grace, the unanimous decision of "the Court," neither party dissenting, was that nothing but a life sentence, to be served concurrently and mutually, would unravel the tangle. With this Solomon's judgment, verifying the wise old king's wonderment at "the ways of a man with a maid," the Master-Force of the world, in a fuller than a mechanical sense, again conquered.

[The End.]

New York to St. Louis

(*Continued from page 23.*)

eral miles, over 300 cars being in line. Pontiac to Springfield was comparatively uneventful, although dusty, and during this trip we encountered a ledge of rocks and a deep sand stretch which provided a novel experience. This was at a point where the road crosses the Sangamon river.

Green and red control flags were established, and a halt was called until 4 o'clock at East St. Louis, when the main body, with the exception of a very few who failed to meet the others on time and who had sent on word that they were coming, joined in line after the committee cars. The dusty, sun-baked tourists were escorted in triumph into St. Louis over the placid waters of the great Mississippi, and into the Exposition City, where they proceeded to the quarters assigned them.

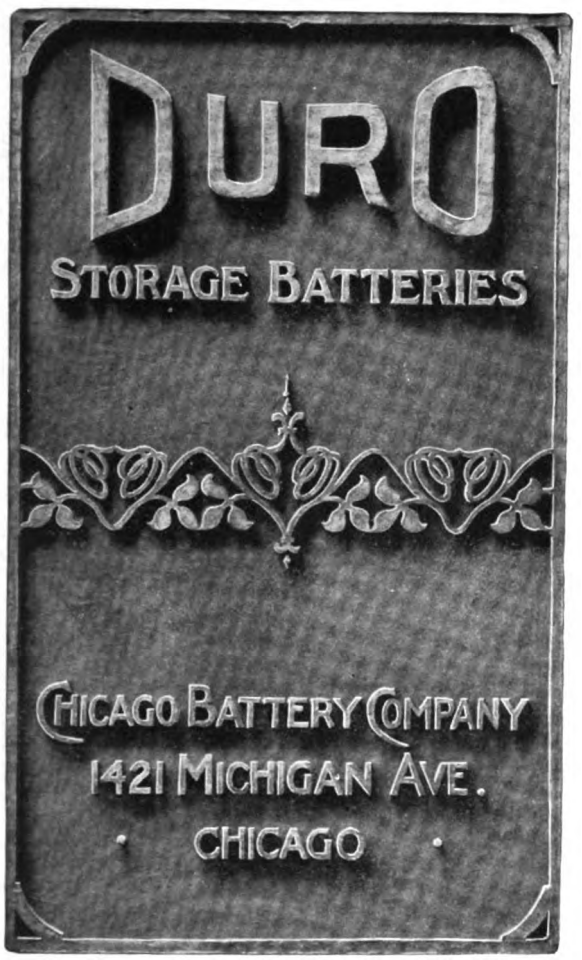
The first ceremony to be undertaken was the delivery of the missives of the mayors and governors of the several cities and states through which the tour had passed, to Mayor Rollo S. Wells, congratulating him upon the success of his city in its gigantic Exposition.

On Automobile Day, under the escort of the local motorists, the tourists formed in order of their entry and proceeded to the Exposition grounds, where they were received by Governor Francis and the committee of the Exposition authorities and the Mayor of the city. They were conducted along a route previously arranged to the grounds, and finally reviewed by the president of the Exposition, President Whipple, of the A. A. A., and Mayor Rollo S. Wells. They then disbanded, thus ending the tour of 1904.

Certificates have been awarded and many of the cars are arranging at present to return overland, spreading the gospel of good roads and extending the influence of the automobile.

I wish to express the thanks of the country for the committee to the representatives of the press of the country for the exceedingly appropriate way in which they conserved the best interests of the tour and helped to accomplish the results which we had in mind and did obtain.

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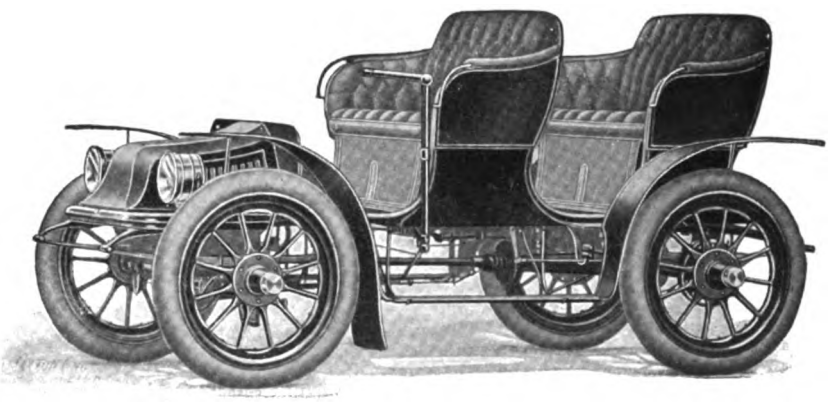
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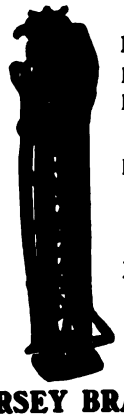
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A Forge and a Foundry in the Toolbox

(*Continued from page 13.*)

Briefly, thermit is a chemical compound by means of which a foundry is possible without a furnace, and welding is practicable without a forge. At greater length—well, at this early stage in the history of thermit, it hardly is possible to conceive the extent of its probable application in the arts and sciences; it will be enough to tell herein only what is now established.

Alumino-thermics, the art of utilizing thermit for practical purposes, is based upon the chemical phenomena encountered when aluminum combines with oxygen. Such combination, though difficult to start, when once under way under proper conditions, takes place with great violence and the evolution of a very high temperature. This, so far, is nothing that has not been common knowledge among chemists for many years. The essence of alumino-thermics is the development of what formerly was merely an interesting laboratory experiment into what now is an important commercial process.

The secret of this development lies in the use of the solid oxygen contained in metallic oxides, in place of atmospheric oxygen, and finely divided aluminum in place of that metal in mass.

To make aluminum combine with oxygen under ordinary circumstances, it must be highly heated from an outside source. With thermit, however, which comes in the form of a dull powder, in which the grains of aluminum and oxide may be plainly perceived, it suffices to effect ignition at one point only—usually the top of a pile in a crucible or elsewhere. From a few seconds to a number of minutes, according to the quantity of the thermit in the operation, then suffices for complete combustion, or, more properly, combination.

Taking the case of iron thermit, which is simply a properly prepared iron oxide mixed with the powdered or granulated aluminum, the reduction forms a most interesting and beautiful object lesson in the elemental force of enormous temperature. A pinch of ignition powder (peroxide of barium and aluminum dust) is used to bring about a sufficiently high temperature to start the action, which will not commence at below a red heat, and this, in turn, must be lighted by a large flaming "storm match." The temperature produced by the combination of the aluminum and oxygen is exceedingly high, higher than that of the oxy-hydrogen blowpipe, and probably about equal to that of the electric arc, which has long been considered the highest heat obtainable by artificial means. According to exhaustive tests with different kinds of pyrometers, this heat is estimated to be in the neighborhood of 3000° Centigrade—5400° Fahrenheit. To say that the effect of this extraordinary temperature is remarkable is to state it mildly. The ignition powder burns first, with a scintillating brightness that lights up everything about; then, after the mass has become momentarily quiescent, the red-hot nucleus from the burnt ignition powder sinks into the thermit, there are a few preliminary sputters, and, almost instantly, the crucible is like a miniature volcano in action. Scattering sparks are thrown about, making it necessary to wear glasses, and the heat is so enormous that both during and for many minutes after the reaction the top layer of corundum slag and parts of the very crucible itself are heated to a dazzling incandescence, so intense that even the strongest of artificial illuminants pale when contrasted with it.

Long after it is taken from the crucible, the molten metal still glows like an arc light, and bucketfuls of cold water may be poured over a lump weighing several pounds without cooling it appreciably. Even less than a pound of the hot metal will set a pailful of water boiling if dropped into it. The great heat of the reaction perhaps can be better appreciated by the technically versed when it is understood that chromium is as fluid as water as a result of the terrific heat. For chromium is less fusible than platinum, the well-known refractory metal that until within the last few years had never been melted in a quantity greater than a few pounds.

There is a special thermit for each of many well-known metals. There is nickel thermit, iron thermit, titanium thermit, chromium thermit, manganese thermit, molybdenum thermit, vanadium thermit, cobalt thermit, copper thermit, niobium thermit, tungsten thermit and so on. All are compounded on practically the same principle, involving the use of an oxide or sesquioxide of the metal mixed with the finely divided metallic aluminum. All are ignited in substantially the same manner, and in all the heat of the reaction is practically the same, the only fundamental difference being in the metal or alloy that is reduced. The upper layer in all cases is of corundum, oxide of aluminum—probably better known as alumina, or emery, which is commonly used as an abrasive. Some of the thermits are not of as great practical value as others, the principal use of course being for that of iron, but all are more or less valuable for forming alloys and for other special purposes. In some cases the compounding of a thermit is less expensive than any other known means of reducing a metal. Particularly is this true of chromium, which can be produced for eighty cents a pound by the thermit process.

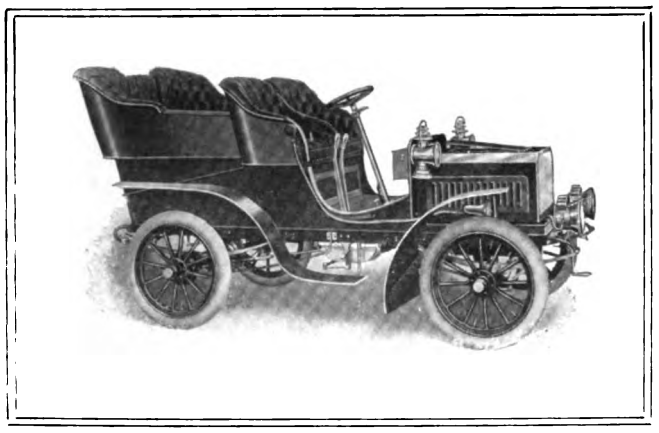
It is evident, from what so far has been stated, that the great heat produced by thermit is highly concentrated and in small space. This fact gives it its many points of practical value, not contemplated originally, besides making it useful for welding and for casting. In fact, for many purposes where a very high temperature is required within narrow confines, thermit is useful, and, unlike all other means for producing high temperatures, requires no elaborate plant or apparatus. Iron thermit, which is sold at retail for forty cents a pound, gives, upon combustion, one-half of its weight of remarkably pure iron, free from carbon, and resembling what is known as mild steel. In a crucible, although the iron weighs as much as the corundum, it occupies only one-third as much space, because of its higher specific gravity.

(CONTINUED ON PAGE 56.)

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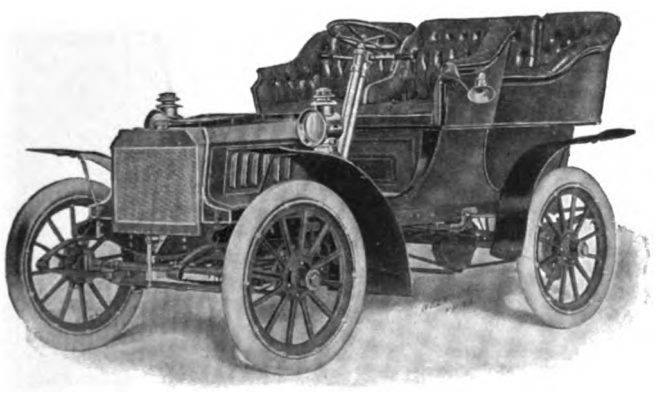
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The progress of the Oldsmobile abroad has been a continual triumph. It has led the advance of automobiles into remote corners of the earth. Everywhere it is recognized as the world's standard runabout—*the best thing on wheels.*

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The Oldsmobile Curved Front Runabout is the most thoroughly tested automobile in the world. Built upon the solid foundation of Oldsmobile experience the Oldsmobile Light Tonneau Car possesses style, quality and efficiency to an unequalled degree. It is in no sense an experiment. It is built to run and does it. It has plenty of speed and no end of endurance. It is built without gaskets. Cylinder and cylinder heads are cast integral. Main bearings are self oiling. The hub brakes are controlled by foot lever. There are numerous other distinct features.

Our immense factory facilities—nearly one million square feet of floor space—insures prompt delivery. Write Dept. 90.

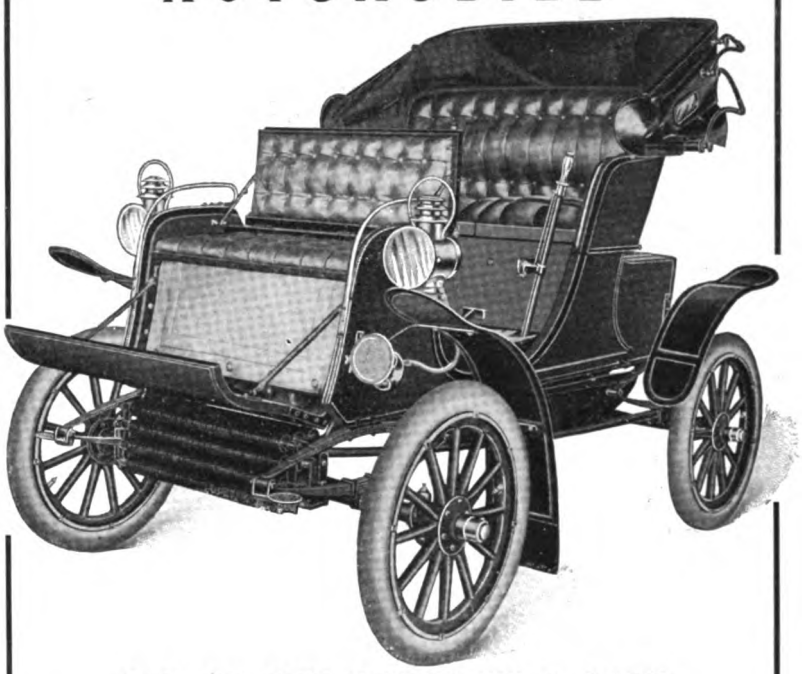
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AUTOMOBILE



CAN BE RUN EASILY BY A LADY

as the following endorsement (one of the innumerable testimonials we have received) will attest.

A Holyoke, Mass., Lady recently wrote us:

"I wish to tell you the Automobile I bought from you this Spring has thus far given me excellent service. I have not experienced any trouble in running the machine and find it in every way satisfactory."

Send for catalogue containing full details

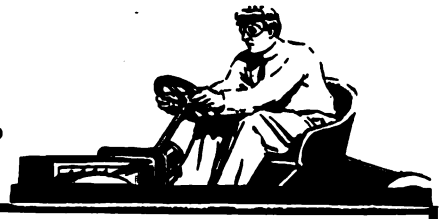
J. STEVENS ARMS & TOOL CO.

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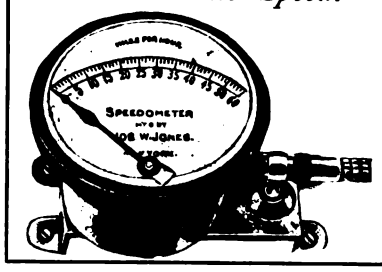
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"It Shows the Speed."



"IF every user of an automobile possessed a **Jones Speedometer**, he would save himself much *wear and tear*, and soon render the enforcement of obnoxious laws supposedly made to regulate speed, very nearly a *dead letter*."

(*Packard Motor Car Company of N. Y.*)

Jones Speedometer
135 West 32d St., N. Y.

NTY

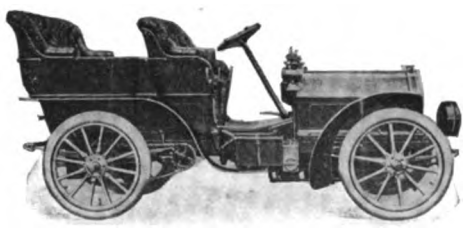
THE average advertising agency is merely *a placing machine*. While the purchasing of space is a factor in our business, we *furnish further facilities* in the promoting of general publicity, the preparation of copy, and the making of designs and cuts. Automobile manufacturers desirous of intelligent service will probably gain a point by sending us their names.

Publicity Press, *150 Nassau Street, New York City.*

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35 H.P. L'Aries

DEPOT FOR ASTER MOTORS. AUTO ACCESSORIES OF ALL KINDS.
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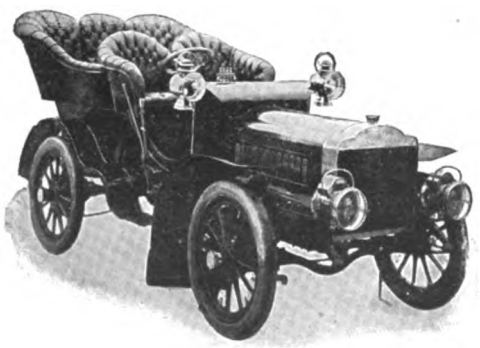
'Phone 1820 Columbus ***1679 Broadway***

"BETTER than the $8,000 French Car"

is one pleased purchaser's opinion of the

THOMAS
3-cylinder
Touring Car
which costs several thousands less.

There is every reason why this should be so. Even if the price is not an object, wisdom and self-satisfaction ought to dictate inquiry into the merits of the car that should beget such opinions. Are you familiar with them?



E. R. THOMAS MOTOR CO., Buffalo, N. Y.
Member of the Association of Licensed Automobile Manufacturers.

With a few pounds of iron thermit in a small repair shop, or even in the toolbox of a motor car, together with perhaps a crucible and a small quantity of specially selected molding sand, any one of ordinary technical ingenuity can, with a very little practice beforehand, effect emergency welds and make small castings.

Making a casting requires only an ordinary knowledge of foundry work. The molding sand used must be suitable for steel castings, and the mold is made by any ordinary method.

For welding, either of two methods may be followed. One consists simply in juxtaposing the broken parts, building about them a small dam of molding sand (as much pains as is considered desirable may be taken with this detail), and then running the molten iron from the bottom of a crucible of freshly ignited thermit. A very stout joint is thus made, and it can be made perfect in appearance as well as in strength by careful finishing with a cold chisel and a file. The amount of finishing a joint requires is of course largely determined by the care taken in making the mold.

The other method of welding by the use of thermit involves no actual contact of the molten iron with the parts to be welded. In this case a mold is built as before, but the crucible is emptied from the top instead of from the bottom, so that the pieces operated upon are first covered with the corundum slag and brought to a welding heat by contact with that and by heat from the metal that follows after it. The moment a proper heat is obtained, the broken pieces are forced together, resulting in a perfect weld. Then, by quick manipulation, the coating of iron and corundum is hammered off. Some skill, though little apparatus, is necessary to the success of welding by this process, and a few experiments should be made before expecting a satisfactory result. With proper molds, an expert will even weld iron pipe without in the least obstructing its interior.

The crucibles for use in connection with thermit range from 2½ to 280 pounds in capacity, and from $1.30 to $50 in cost. They are lined with a magnesia cement, which is the only material refractory enough to be suitable, and even with this frequent renewals of the lining are necessary. Those arranged to be tapped from the bottom are closed with a hard, burnt magnesia stone, perforated with a tapered hole, which is in turn stoppered by a tapered magnesia stone thimble. This also has a hole through it, which is closed by a sheet of asbestos and a flat, wrought-iron "coin." To tap off the molten metal from a crucible of this sort the smaller magnesia stone is pushed up from the bottom by a poker-like iron rod or any other suitable means. The iron coin and the asbestos sheet melt the instant the hot metal from the reduction reaches them, and so cause no permanent obstruction. The crucibles are all jacketed with sheet iron, and tripods can be had for holding them. In fact, the whole process is in every way worked out upon a thoroughly practical basis.

One of the most startling and at the same time most effective applications of thermit is in effecting repairs to marine engines, and other parts of steamships. Broken sternposts of large transoceanic liners have been welded under most difficult circumstances with most satisfactory results. Propeller shafts, likewise, can be and have been welded while on the high seas; and it is a question, now that thermit is generally available, if such a thing as a crippled liner limping into port with one propeller need ever happen again.

For heavy welds such as that to a 20 or 24-inch shaft crucibles six feet high and capable of containing 700 pounds of thermit have been used. Yet the reaction in these mammoth melting pots takes hardly longer than that in one of only a few pounds capacity. Cracks and seams in iron or steel plates also can be welded by the use of thermit, the process requiring, however, special preparation and facilities.

So far, one of the most important applications of thermit, and one most conclusively establishing its value, is the welding of rails for electric roads. Many thousands of miles of track have been thus welded abroad, and the electric and cast welding processes are fast falling into disuse before the newcomer in the field they have so long monopolized. A thermit weld of a rail not only can be made with less apparatus than is required for cast or electric welding, but when completed it is actually stronger than the unwelded rail, all breaks, in a testing machine, occurring outside of the welded zone.

For repairs to mining machinery in out-of-the-way districts, remote from foundries and machine shops, thermit is coming to have important application. Heavy shipments of it have been made to South Africa, Australia, and the western United States, and the opinion of mining engineers universally commends it.

In considering from any given standpoint what can be done with thermit, it only is necessary to consider what can be done with a supply of liquid steel—mild, over-heated steel, containing 0.1 per cent. of carbon, and capable of being hardened, if desired, by the addition of a small quantity of manganese. For instance, not only can broken and wornout parts be mended, but faulty castings can be corrected, etc.

Ordinary clay crucibles, and even the highly-refractory crucibles that are made from clay and graphite, become red hot, then white hot, and finally melt if it is attempted to burn a charge of thermit in them. Even lime, which is used for reactions in powerful electric furnaces of the Moissan type, melts and runs like water when subjected to the enormous heat that a thermit crucible must withstand.

It is entirely possible in emergency extemporizing of difficult repairs, to dispense with both crucible and molding sand. A motorist, for instance, might scrape up sand from the roadside for a rough mold, in which to imbed a broken axle. Then by igniting a heap of thermit directly in the mold, a weld would be effected, rather botched and unsightly, it is true, but much better than no repair at all and a walk or a tow to the next town.

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CADILLAC

Model B, 1904.
Complete, $900.
Without Tonneau, $800.

A man drove a Cadillac up the steps of the Capitol at Washington. He paid for his fun, but it was worth the money to know the power of the Cadillac.

Write for illustrated booklet S which tells about the Cadillac and gives address of a nearby agency where it may be seen and tried.

Cadillac Automobile Co., Detroit, Mich.
Member Association of Licensed Automobile Manufacturers.

Handbook of Gasoline Automobiles

Issued for the Information of the Public who are Interested in Their Manufacture, Sale and Use.

This handsomely bound and artistically printed book now in the hands of the printers will contain 88 pages and will illustrate about 80 gasoline cars, one car and its specifications to each page. It is issued primarily for convenience and information to the prospective purchaser of an automobile. The products of the principal manufacturers throughout the United States of America and the importers of gasoline machines are shown by illustrations and specifications. These specifications form a series of the leading questions that arise in the mind of the purchaser, with the answers thereto in red ink. The questions being uniform, the ease of comparison is obvious and the purchaser is enabled to select the machines which are best suited to the service required, to his personal taste, or the means at his command.

Sent upon receipt of 6 cents in stamps for postage

Association of Licensed Auto. Mfrs.
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PUTTING on a Fisk Tire is as easy as sliding a belt on a pulley and once in place, it is impossible for it to slip or become detached as in the clincher type, it is mechanically fastened to the rim. Another point: the air chamber being entirely above the rim allows of a resiliency posessed by no other tire, and this is what makes Fisk-shod cars ride so easily.

Ask for Fisk Tires on your new car, every manufacturer will furnish them.

Fisk Rubber Company
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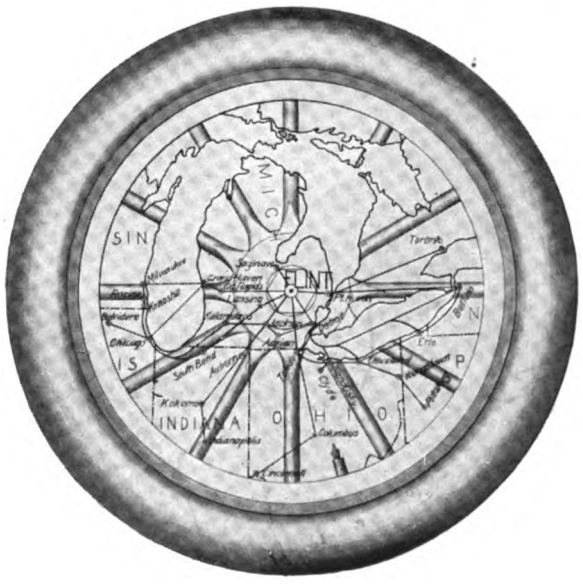
For Motor Cars

AUTOMOBILE WHEELS

"GET IN LINE FOR 1905 AND AVOID THE RUSH"

We make all kinds of Automobile Wheels.
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Write for prices.
Try us.
"Have you seen the 'IMPERIAL' the strongest and neatest wheel made?"

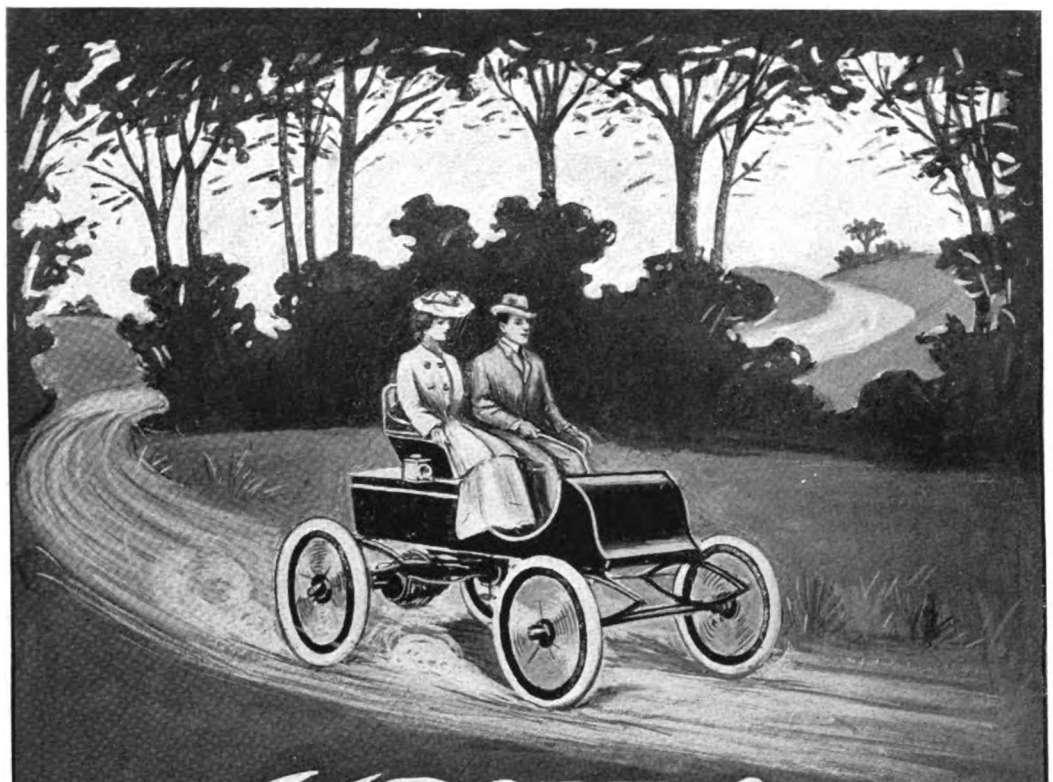
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"No holding of orders. We guarantee prompt shipment and the 'BEST WHEEL ON EARTH.'"
Now is the time to specify for your requirements, so that ample time is given to prepare for your particular style.



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IMPERIAL WHEEL COMPANY
FLINT, MICH., U. S. A.

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POPE Waverley ELECTRICS

Pope-Waverley Model 36 (like illustration. Price, $850; with top, $900) is the lightest, smartest and speediest electric runabout ever built. The distinctive forward box is designed to carry storm aprons, side curtains and small packages. This Model is fitted with 30 cells of No. 28 Sperry or 30 cells of 7 P. V. Exide batteries, giving a light battery equipment.

We make **Runabouts, Surreys, Stanhopes, Chelseas, Physicians' Road Wagons, Deliveries, etc.** 15 distinct models from which to select. Buy now and enjoy the late summer and fine autumn riding.

Complete catalogue and address of depot nearest you on request.

POPE MOTOR CAR CO., Indianapolis, Ind.



A BIG QUESTION

in automobile buying, a question of importance is the Rims. Imperfect Rims affect the tires and upon the tires depend the enjoyment and oftentimes the safety of your travels.

If you specify Standard Rims—no matter what car you choose—you'll get Rims of Reliability. They're so reliable that tire troubles are lessened where they are used.

THE STANDARD WELDING CO., CLEVELAND

Western Representatives: McCLERNAN & ORR, Chicago.

THE VANDERBILT CUP

The accompanying cut is an excellent representation of the Vanderbilt Cup, made by Tiffany, which is to be contested for by many



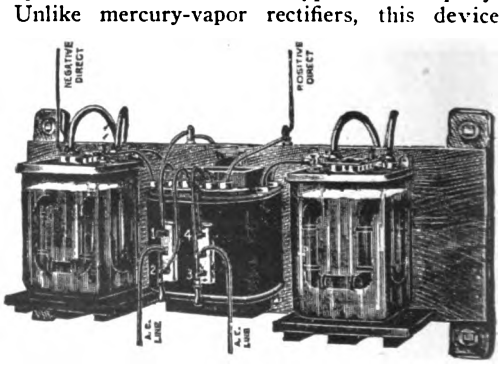
powerful racing cars on the 8th of next October, over a course laid out on Long Island.



A STOP FOR REPAIRS AND——GASOLENE

Alternating-Current Charging

A new alternating-current rectifier for charging a storage battery from an alternating-current system has been placed on the market by a western electrical appliance company. Unlike mercury-vapor rectifiers, this device



produces not merely an alternating current with pulsations of greater amplitude in one direction than in the other, but delivers a true, uni-directional current, slightly pulsating in character. This is even better for charging storage batteries than a steady direct current.

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Automobile Lamps

MADE IN RICHMOND, INDIANA



Made like all automobile lamps should be made.
Made better than other automobile lamps.
Made to last longer than other automobile lamps.
Cost no more than other automobile lamps.
A perfectly equipped plant for making automobile lamps and buying material at lowest prices enable us to do this.
When buying automobile lamps, buy the best—the "Richmond."

The address is important. Here it is:

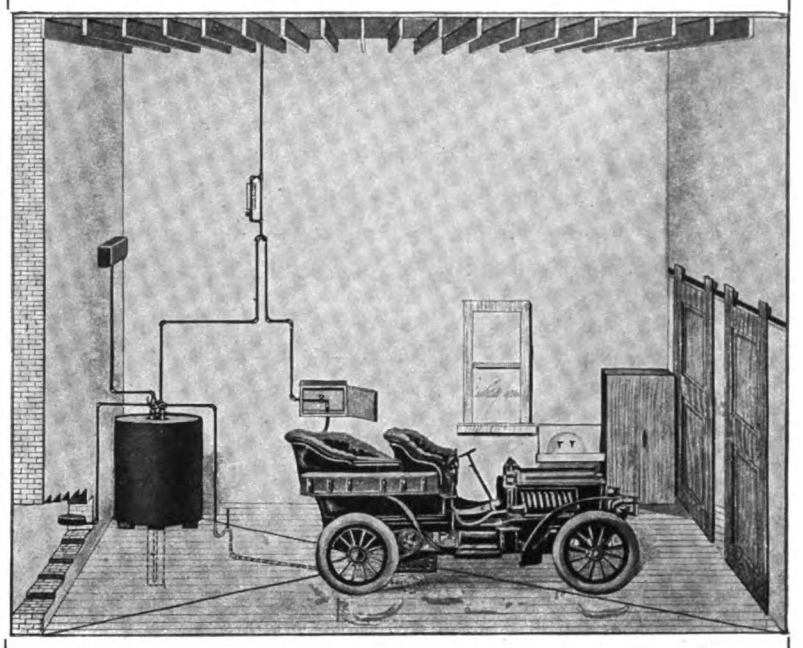
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RICHMOND, INDIANA.

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It is the ONLY SYSTEM for STORING and HANDLING GASOLINE

which cannot be exploded by fire, electric spark or lightning.
which is ENTIRELY EVAPORATION PROOF.
which needs NO PUMPING—simply turn the faucet, same as water, and flow begins. No pressure on tank or system unless oil is being drawn.
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IS ALWAYS SATISFACTORY
OVER 3000 IN CONSTANT USE ON
ALL STYLES OF GAS ENGINES.



Guaranteed for Full Capacity, Longest Life, Greatest Mileage, and not to Leak or Slop the Acid even by Jolting.

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The Object of Lubrication is to reduce friction and to save power and unnecessary wear.

To obtain the *best results* use the *best lubricants*

COLONIAL MOTOR OIL AND SILEX GREASE

Manufactured Especially for the Lubrication of Automobiles, by

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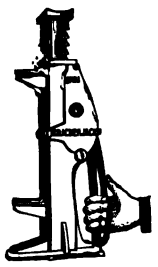
80 South St., - NEW YORK
36 Central Wharf, - BOSTON
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Don't Break Your Back, But
Get a Kracker-Jack

and a set of Tire Irons. Sold by local dealers, or by

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Malleable Iron, 15 in. Long
75 Cents a Pair Plated, $1.00

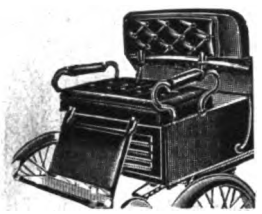
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This is a perfected Kerosene burner in every respect. It starts in one minute with an absolutely blue flame without the use of alcohol or gasoline. There is no smoke or odor.
We are prepared to demonstrate its efficiency, and the same can be seen in actual operation at any time.

The **KEROSENE POWER CO. OF NEW YORK**
3rd Floor :: 121 East 13th Street :: New York



The Swan Patent Spring Edge Dos-a-dos Seat
Will soon be on every runabout auto you meet;
With its lock-joint foot rest, which can be folded so neat,
At prices from ten to twenty dollars cannot be beat.
It is the best that ever was made,
With a liberal discount to the trade.



FLINT UPHOLSTERING CO., FLINT, MICH.

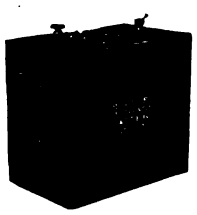


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Any voltage or capacity. Can be re-charged

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AMERICAN COILS and PLUGS
are the keys to perfect ignition

Accept no imitations but get the BEST

Write for Catalog. **AMERICAN COIL CO.**
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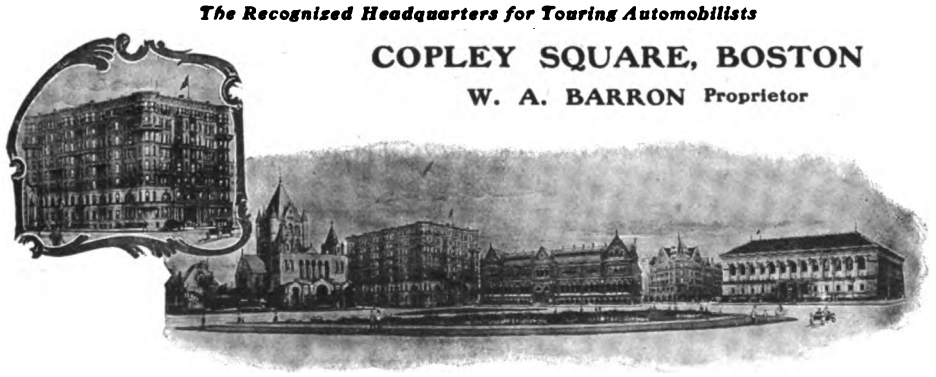
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THE BARRON, MERRILL & BARRON CO.

TOURISTS *en route to and from mountains and shore will find the unequaled in Boston.* 34 **WESTMINSTER**

Motoring on the Prairies

(*Continued from page* 15.)

of their own, it may be different. The peasant who turns back to the soil after an absence gets but a cold welcome if the farmer is obliged to say: "I have no further use for you; the work you used to do is all done by machinery now."

You may travel with what speed you will all day over prairie roads in midsummer and see one great series of operations going on everywhere about you. Since early morning the harvesters have been at work among the waving grain, the sun burning down upon them with never a cloud the whole long day to dim its strong, hot glare. The white, gray, and blue shirts of the men seem to melt into it; only their sunburnt faces and arms stand out. Large numbers of sparrows fly up with a whirr from the stubble, their wings flashing silver in the light, and crowds of butterflies, chiefly meadow-browns and whites. All through the noontide, and when the afternoon shadows are long, still goes on the soft, monotonous sound of falling grain. From fields far and near the sounds are echoed, for everywhere the same harvest is in progress, and in some fields transportation is also going on. Down the road the broad-tired wagons rumble along, carrying their loads to the stacks or the barns, sweeping the sides of the trees occasionally seen by the roadside, which make a temporary shade that is welcome to the fly-tormented horses.

By and by the long purple shadows creep down over the valley, leaving only the hills beyond redly gleaming in the light of the sinking sun. The forms of the harvesters begin to grow indistinct; a pigeon in the wheat startled by them darts high in the air, with a loud clap of his strong pinions as he flies above the shadow into the light-illumined air. There are all the signs that promise a fair to-morrow in the clear, pale blue of the sky overhead, fading toward the horizon to a fine, purplish pink, in the crimson glow of the sunset, in the swallows flying high, and in the heavy dew that is falling. The air grows cool as the light dies away; night comes on imperceptibly and softly as the dew falls. The innumerable blossoms of the clover where the bees have been murmuring all day grow dark; the cornfields which were so bright at the noontide look wan; under the trees and hedges the gloom deepens. Away in the cool and dewy depths of the clover the partridges are calling.

Presently over the darkening edge of the distant horizon rises a crimson rim—it is the harvest noon. Slowly it looms up, its color fading from crimson to orange as it mounts the sky. All is now coolness, dimness, peace, as if the weary world were resting after the burden and heat of the day. The harvesters have all gone home and the swallows are flying swiftly athwart the evening sky. Now come out the soft-winged creatures of the night, the bats flitting hither and thither; the owl, which looks in this light like a broad white blurr, glides around his accustomed beat, across the shadowy meadows, over the cornfields and clover; little moths rise from the trees and hedges where they have been slumbering all day, and go seeking the sleeping flowers. Some of them are like downy white owls themselves, with their gleaming eyes set in fluff. The cattle, teased all day by the flies, now lie peacefully chewing the cud or sleeping, or else moving about browsing, their forms showing dimly through the dusk; and the weary horses, turned out as soon as their work was done, are resting.

There is no nightingale to sing to the harvest moon; there is not even the sound of running water, for the watercourses are all dried up and the brooks that come from living springs have run low, choken with rush and sedge. The orange of the moon turns to silver as it gets high, but it does not shine with the cold glitter of a winter's night, when the sky beyond it is dark and fathomless and the shadows it casts are black as ink, but with a broad, soft radiance. Higher and higher the fair white moon climbs the pale

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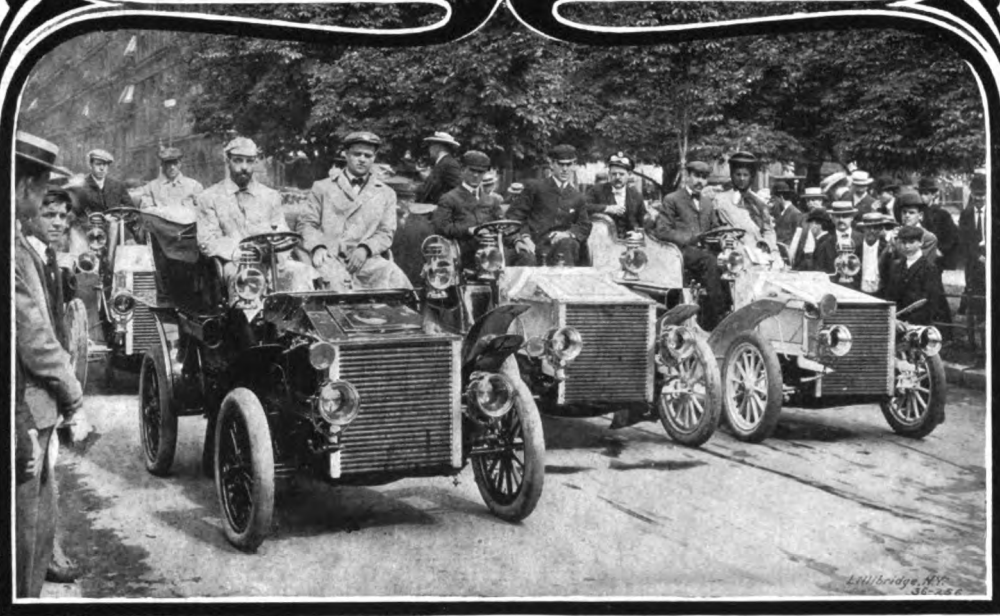






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Re. The St. Louis Tour.



Nine Incomparable White Steam Touring Cars started and nine arrived at St. Louis as per schedule. Four from New York; one from Boston; two from Cleveland and two from New Orleans.

If you start in a White, nine times out of nine you will arrive at your destination on time.

"The best collective performance, however, was that of the brigade of five White steamers, which, keeping well together throughout, glided over the uneven surface as if they had been skimming over asphalt."—*N. Y. Herald.*

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dome of the sky, till her silver turns wan in the faint gray light which heralds the coming dawn. Twit, twit goes a wakening swallow, a line of orange-flame runs along the eastern sky, telling the sun is about to rise; and now, for a space, the harvest moon's work is done.

A number of years ago the writer, a college student, full of enthusiasm, but still under the fortunate necessity of making a vacation pay for itself, started work in the harvest fields of Oklahoma in the latter part of June. While he did not make "one day stands," as soon as the height of the harvest was over there, he moved a couple of hundred miles north into Kansas, and repeated that operation again and again, progressing by regular steps through Kansas and Iowa into Minnesota and Dakota, and finally into Manitoba, leaving that province for his eastern home after the most healthful and exhilarating summer of his whole life. The years that have since gone, with their less happiness and less freedom, have given no such vacation opportunity as this.

His days in the harvest field are over, but there comes across his thought the possibility of some day covering this very same territory in a motor car, entirely forgetful of business from beginning to end. He would want about six weeks to make the journey from the northern Texas border to the lower edge of Manitoba; but any spare time could be put in to advantage in the way of side trips into the boundlessness of the thousand-miles-square prairie. Not the least of the pleasures of such an expedition would be the opportunity to meet and know the motorists of the great Middle West. Even if it is a futile hope, it is still a pleasant contemplation.

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It will astonish most motorists to learn that mothballs are a thoroughly practical and highly efficient fuel for motor vehicles, and promise to afford a means of escape from the petroleum monopoly. These articles, familiar to everyone as the accepted mean of keeping wool-eating insects out of the wardrobe, are composed of napthalene, a highly combustible hydrocarbon, fifty-five pounds of which cost one dollar.

As 2 1-5 pounds of naphthalene are found sufficient to run a ten-horse power automobile six miles, the cost to a mile works out at two-thirds of a cent.

The carbureter necessary consists of a hopper containing the mothballs and a distributer by which they are fed, one by one, into a chamber surrounded by hot water. This melts and vaporizes the napthalene, which then is used to form an explosive mixture with air, in the ordinary manner.

A Stop-Watch Discredited

The first case on record of speed-indicator evidence being accepted in a court of law as expert testimony in a matter of vehicular speed came up the other day in a New England city. A well-known newspaper man was arrested for driving a large motor car at a rate claimed to be in excess of fifteen miles an hour. Two officers swore to the alleged infringement of the law, basing their testimony on the showing of a cheap stop-watch, and things began to look bad for the defendant. He, however, swore that his speedometer, a highly accurate and expensive instrument, at no time indicated more than ten miles an hour on the occasion under consideration, in which testimony he was corroborated by a companion. The justice was favorably impressed by the evidence of the defendant, and with the wisdom of a Solomon adjudged that in the matter of veracity there was as good a showing on one side as on the other, while as for the mechanical testimony, certainly that of a forty-five dollar speedometer would appear more reliable than that of a five-dollar watch. The case was dismissed.

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Norfolk Coat for Men

THE tailoring of a leather coat taxes the cleverness of the craftsman; the Norfolk model exhausts it. The distinguishing feature of this garment is the yoke, which gives to the shoulders a broad, well developed contour. The plaits which begin at the yoke, full belt and pockets (of which there are three) are all liberally stitched. A storm collar buttons closely at the neck. Lengths from 27 to 30 inches, in sizes 34 to 44.

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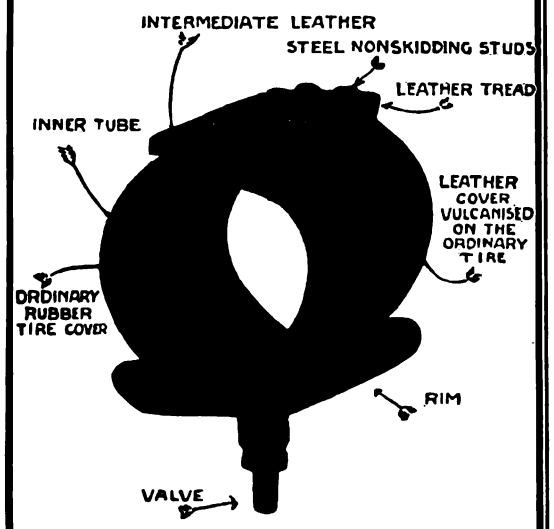
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The Question of Track-Racing

By Frank A. Garbutt

(*Continued from page 29.*)

I do not wish to be considered as maintaining that a person cannot get hurt at track racing or that there is no element of risk in it. You can get hurt or injure others, however, with much greater facility upon the road. Unguarded railroad crossings, crowded thoroughfares, and rough or chucky roads offer much more fruitful sources of accidents than can be found upon the track. No one who has not driven a car over the average roads can appreciate the effect of the constant jarring and racking, rendering accidents liable at any time, owing to the failure of some essential part, weakened by long continued shocks, any one of which would have had no perceptible effect. On the track all this is different, and I venture to say that one mile of running on the road will put a car farther along on its journey to the scrap heap than three miles on the track.

In Mr. Batchelder's article we are told of the "tremendous strain on the tires," and that "it is no wonder air-filled rubber yields under the unusual demands"; also, that "there should be specially constructed motor tracks of nothing less than two miles, well banked and practically dustless." Let us look at these statements critically and see what there is in them. First comes the "tremendous strain on tires" that makes Mr. Batchelder wonder that they stand up at all. In the first place, what is the measure of the side strain on tires? The answer is obvious. The force necessary to move the car sideways, no more, no less. Hitch a team of horses to one rear hub and drag the rear end sideways in a circle. Would you expect to see the tire give way? I should think not. If you had some means of fastening the tread of the tire to the ground, you might possibly drag the tire from the rim, if the wheel did not collapse first; but this would only be accomplished after you had exerted several times the force necessary to slip the wheel sideways. Now, what will be the effect of a similar force exerted when the car is in motion? The answer is equally simple. The faster the car is run, the less resistance it has to sideslip or skid. Theoretically this may not be so, but in practice a number of factors enter into the problem which make it certain that a car will slip sideways under speed easier than when standing still, and the greater the speed the less the force required to cause skidding. This will vary to some extent according to the nature of the track, but for our argument this latter may be safely disregarded. A rapidly revolving wheel continuously presents new tire surface to the track, and this in itself is a potent factor in reducing the force necessary to produce a certain amount of skidding, while at the same time it tends to make this skidding uniform and to minimize the deleterious effects on the tire.

This means, then, that in no possible way can you put an excessive strain on your tires by skidding, and as long as your car skids freely, there is no possibility of rolling the tires off the rims. Let us look at the matter in a different way. Suppose, for argument's sake, that we ran the nose of our car up against a telegraph pole, and then attempted to run the car, what would be the result? The rear wheels would slip, and the higher the speed the less traction there would be. The rubber would in time wear down to the fabric, and heat would be generated by the dissipation of the power at the point of contact with the ground. Would you expect your tires to give way under this "unusual strain"? Well, hardly. They might wear out in a few minutes, but no tire of decent reputation would give way. You have here, however, an extreme case, and one that happily is never even approximated on the track. We are told that in the Gordon Bennett race the tires got hotter than boiling water, and that water was poured over them at controls to reduce the temperature.

I have made it a point to examine all tires that came under my notice upon the track, and

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have never yet found one upon which I could not comfortably bear my hand. I examined tires upon heavy cars run for ten consecutive miles under the minute and found that my hand could easily be borne on the tire. I have found that tires standing in the hot sun got hotter than they did in a race, and in summer time have had my tires come out of a race cooler than they went in. This may occasion some astonishment, but on second glance we will be ashamed of ourselves for being astonished. If the tire was not capable of dissipating the heat as fast as it was created, it would only be a question of minutes, or maybe seconds, until the danger point was passed and the tire destroyed. I have seen a new set of tires put on the Bullet No. 2, and, after being used in a five-mile race, they were completely worn down to the fabric in the next event, a fifteen-mile trial. So completely were they worn that Oldfield was obliged to slow down in the last two miles of the race. I stood on the fence at the lower turn, and as he passed me on the turn, which he ran in 13 seconds (a :52 gait), he laughed, shook his head, and, pointing to his tires, slowed down. This was upon the Los Angeles track, than which to date there is none faster in the world, and it will always be found that the faster the track, the harder it is on tires. This track, it must be also be remembered, hardly averages fifty feet in width, and for safety must not be compared to the broad eastern tracks.

This matter brings us back to another serious matter, the competency of the driver. A man like Oldfield is characterized as a daredevil, and as this is a portion of his stock in trade, he does not deny the soft impeachment. I say, he knows his business, and aside from the chance of something giving way about his tires, wheels, axles, or steering gear, that he does not take a chance on earth when he drives a mile under the minute on the track. To put it in his own terse phraseology: "There is nothing to it unless something breaks, and then it's just as fierce as it looks." We must not forget, however, that his opinion is of his own skill and capabilities, acquired by long and careful practice. What might be perfectly safe for him, might be suicide for a novice.

And now we are getting to the meat in the cocoanut—the quality of the machine and the competency of the operator. Mr. Batchelder will tell us that men get mad with a "fever of acute motorism," whatever that disease may be, with a few more high sounding words thrown in for good measure and to fill space. I tell you that they do nothing of the kind, and that if anything is calculated to chill a man's blood and make him cautious, it is driving a motor on the track. When he sees those turns rising up to meet him with startling rapidity, looking like the end of the earth, does he dash at them like a crazy madman bent only on the destruction of himself and every innocent spectator within reach? Don't you believe it. If he doesn't know by long experience, based on careful practice, that he can make it, he, in Mr. Batchelder's language, "chucks it," and resigns his mind to losing, for which give him due credit. I have never yet had a car that could go faster on the track than felt perfectly safe to me, and I confess to a feeling of a curiosity to know what it would be like to have more power than I could use. I will confess to a number of little "thrills," as Mr. Batchelder so naively calls them, when from some cause or other new to me, my car would start for the fence. But as a partial excuse, therefore, I would plead that our track has a six-foot ditch just inside the fence, and this ditch never did look good to me.

I do not think that a proper appreciation of the game can be had through watching races. A hotly contested automobile race is too spectacular and thrilling to the spectator. He sees the cars disappear from view around the turn in a cloud of dust, and, like the ostrich with its head hidden, he imagines that because he can't see, the drivers cannot. Whenever the time comes that the driver cannot see the car ahead of him, or at least the fence posts on one side of the track, the time has really come to "chuck

(CONTINUED ON PAGE 69.)

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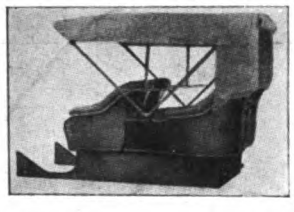


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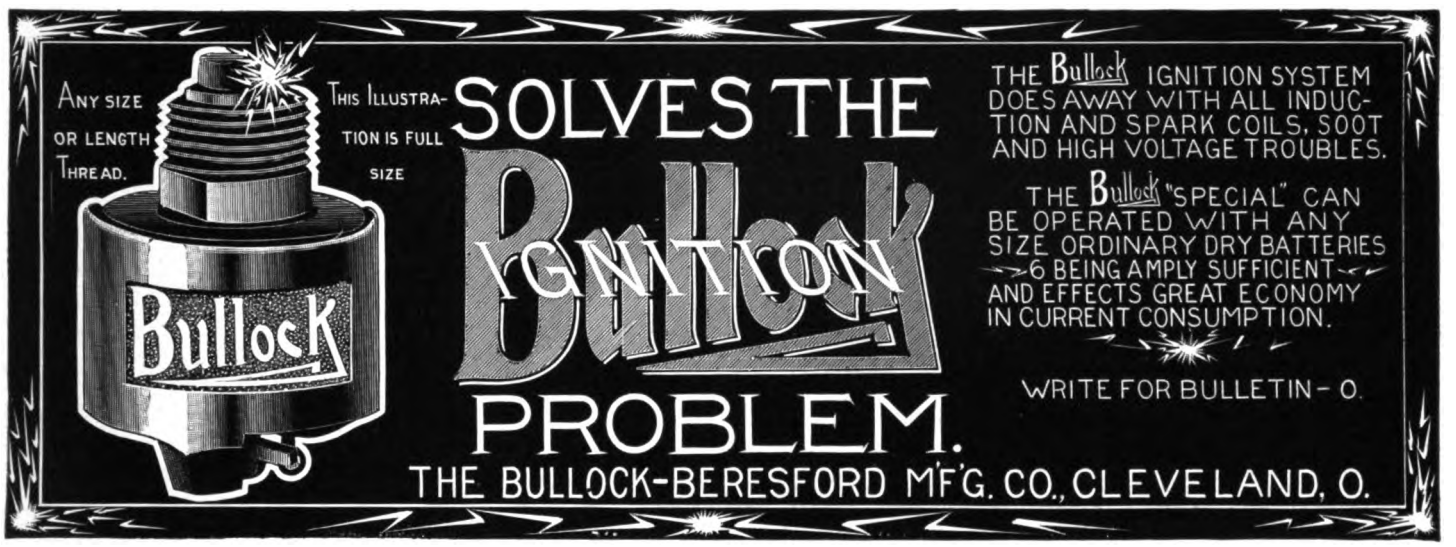
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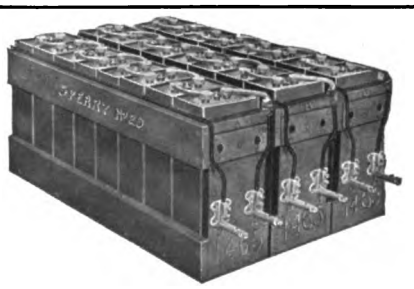
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The Question of Track-Racing

By A. G. Batchelder

(*Continued from page 29.*)

to one rear hub and dragging the rear end sidewise" happens to bepractically the same on both side of the car; while, in going aroun unbanked curve at high speed a wholly different condition is encountered, in which the tires on the outer wheels carry from two-thirds to seven-eighths of the entire weight of the vehicle, it is evident that Mr. Garbutt is 300 to 1,000 pounds out of the way in this statement, in the case of an ordinary heavy racing machine—enough to make the tire problem very different from that which he assumes. For further information concerning this interesting subject, I would refer Mr. Garbutt to an excellent technical article on page 510 of the *Automobile,* issue of November 14, 1903.

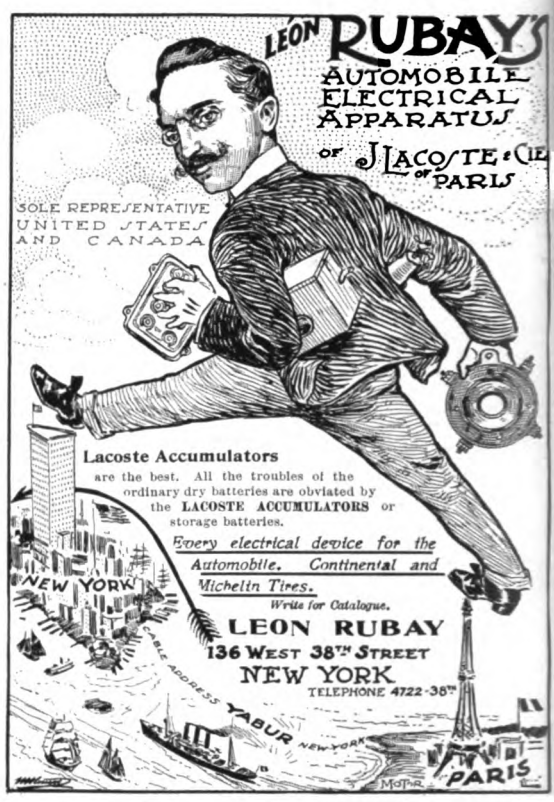
It is, of course, true that if a car actually skids under conditions that impose a side stress against the tires, the side stress is thereby reduced to an extent proportionate to the freedom of the skidding, but nowhere in the articles in July MOTOR is there any statement to the contrary. And, in any case, the fact that skidding may reduce one danger does not obscure the fact that it is of itself excessively dangerous when it occurs at high speed, and not at all to be desired by even the most skillful driver, though he may have the temerity to produce skidding deliberately.

In the matter of tires becoming "hotter than boiling water," my experience is directly contrary to Mr. Garbutt's statement. I have placed my hand upon the tires of Barney Oldfield's Winton racer, just after it had run 15 miles on the Empire track at Yonkers, N. Y., but I certainly did not hold it there, nor could I have done so "comfortably." In the latest Gordon Bennett race, in which cars were run not merely "ten consecutive miles under a minute," but were run for hundreds of miles at practically that gait, in several cases tires became so hot as to alter the quality of the rubber. Since the rubber in tires is vulcanized at a temperature of about 250° F., nothing less than such heat would alter them; and, as the temperature of boiling water under ordinary conditions is 212° F., it would appear that Mr. Garbutt is somewhat in error here. Regarding the truth of water being poured over tires at controls to reduce their temperature, many pictures taken during the race showed this being done.

The fact that Oldfield has "worn out a new set of tires in five miles' running," at a cost of about $240—$48 a mile—has never been denied by me, and only further condemns track racing as a performance devoid of much utility. In even the most hostly-contested road races, tires can be depended upon to last 500 miles.

Mr. Garbutt's peculiar ideas concerning banked tracks, he claiming that the principle upon which all good roads, horse tracks, bicycle tracks, railways, etc., have been built for years, is wrong, is to say the least interesting. Banking of the roadway is well known to be the only feasible and scientific means of offsetting the enormous centrifugal force that comes into play when a rapidly-moving vehicle goes in other than a straight line forward, and to contend that a track for motor racing should not be banked shows a lack of knowledge of the conditions that is surprising in a man who has won as many races on tracks as has Mr. Garbutt. It is with a flat track that the previously-mentioned effect of the centrifugal force in throwing the major portion of a vehicle's weight upon the outer wheels is most marked, and serious. To say that excessive or even sufficient banking might be as objectionable as the absence of any banking by no means proves that the latter is good. Banking is calculated either wholly or partially (usually the latter) to offset the action of centrifugal force, and a mile track with only a 20° bank certainly would be better than a flat track, yet would endanger no idle machines by making them tip over. Incidentally, it may be mentioned that while a mile track as laid out for horses "would require an angle of 45° on its narrow turns fully to offset the centrifugal force developed at a

(CONTINUED ON PAGE 69.)



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The Question of Track-Racing

By Frank A. Garbutt

(*Continued from page 66.*)

it," for the danger is actually present. There is no excuse for such dust, however, under any circumstance, and on properly regulated tracks with suitable soil, it is perfectly feasible to sprinkle the turns between heats. On adobe or slippery tracks this is, of course, not practical, but such tracks are never excessively dusty when properly prepared. No races should be allowed upon tracks or roads under any conditions where the dust at any time obscures one competitor from another. Secondly, no spectator should be allowed on the ground at or near fences that could be reached by an unmanageable car. Spectators should occupy the grandstand and bleachers only. A car becoming unmanageable and crashing through the fence might kill twenty or thirty spectators, enjoying a false sense of security even though its own operator escaped uninjured. This, then, is the extent of the lessons we can learn from three full pages of lurid matter. If such articles were not read and considered by thousands, with no more accurate information in regard to the subject than its writer, it had better be left unanswered.

The suggestion that the tracks be not less than two miles, is a good one if practicable, although it is perfectly safe to make turns of one-half the radius at even higher speeds. The Gordon Bennett race proved this, and I myself have seen turns on the track a quarter the radius of the track itself made at top speed.

The suggestion that the track be banked in proportion to the speed is entirely worthless. At first sight it seems plausible, but when you consider that a mile track as laid out for horses would require an angle of 45 degrees on the turns for a minute gait, the absurdity becomes apparent. No motorist, except perhaps a circus rider, would care to run it. It could not possibly be maintained. A car coming to rest on one of the turns would fall off sideways, and in any event a track almost flat is better and safer as well as faster. In entering a turn from the stretch a certain amount of momentum must be overcome in changing the direction. If the track is flat and the car can slide sideways readily, the strain on the tires and the car itself is reduced to a minimum.

In considering, without going into detail, the accidents of last year, just one becomes worthy of comment, and that is Oldfield's trip through the fence at Detroit on Bullet No. 3, resulting in the killing of a spectator. All of the other accidents during the season were the result of inexperience in the operators, or the absence of such ordinary precautions as would make the accident attributable to other causes than track racing itself, and even in Oldfield's accident, had the spectators been kept where they belonged, no fatality would have resulted. As before stated, I have myself seen four cars go through the fence, but a careful examination of the causes only confirmed me in the conviction that track racing is not in itself extra hazardous. Were it possible to make an accurate comparison of the use of automobiles on the road for ordinary purposes and on the track in races including practice, I have no doubt but the track would stand charged with the fewer fatalities.

It has been argued by Mr. Batchelder that we have no right to do anything for sport's sake which risks human life. But we cannot live without taking some chance. I have a very distinct recollection of a certain railroad accident in which upward of thirty people were killed before my eyes. Should I argue from that, that people should not travel for pleasure? As well say, don't go to bed because of the number that have died in bed.

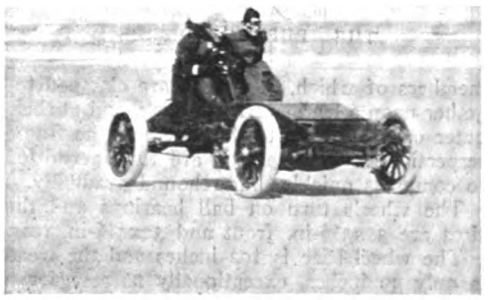
I have numerous friends and acquaintances who talk glibly of 30, 35, 40, and even 50 miles per hour done on the road, and on occasion they describe the terrific speeds they have attained and the thrilling rides they have enjoyed. Many of them have also loudly lamented that they were never able to really let their cars out to their full speed. Often I have coaxed these reckless drivers out to the track for a quiet tryout, and oh, "how have the mighty fallen!" They have invariably commenced by informing me that they wouldn't dare drive those turns at the great speed of which their car was capable, and have just as invariably ended ingloriously a little later by finding that their terrific speed of 30 or 40, or even 45 miles per hour on the track felt rather tame, and, more often yet, they could not average 30 miles per hour, and when their fierce car was all in, that it resembled nothing so much as an old cow. The reason is obvious. The track itself is so safe, even on the turns, as to make it seem slow in comparison with a far inferior performance, even upon the best of roads.

But to return to this famous race meet which is the direct cause of Mr. Batchelder's article. I am not personally acquainted with any of the contestants except Mr. Winchester, with whom I have had the pleasure of contesting. I found him game in defeat, generous in victory, a careful operator, disinclined to take chances, but game to the core. I'll guarantee he is not crazy. A careful study of the likenesses of the various contestants rather inclines one to the belief that the same might be said of all of them. To me they look cool, calculating, rather determined perhaps, but on the whole the kind of men with whom you would elect to trust your life in an emergency where discretion and action played a part. You can pardon a man a certain amount of excitement during a race. He would not be human without it. But you must not overlook the fact that his performance is the result of weeks, maybe months of careful preparation, based upon cool, calm judgment. Crazy, did you say, Mr. Batchelder? Well, you have another guess coming.

Much more might be said in regard to the strains upon the cars themselves, engendered by high speeds on the track, as compared with high speeds on the roads; but this article is already long enough, and we only get back to the same result. Track races are the safest. Why should we swallow without effort the Gordon Bennett race of 350 miles, averaging 60 miles per hour over roads with sudden turns, hurried stops and rapid accelerations, up hill and down dale, and with a maximum speed of 90 miles per hour, and with hundreds of thousands of spectators lining the course, with the 87 miles of which some of the operators were almost totally unfamiliar, and then gag at a ten-mile race over a specially prepared level surface, with no sudden starts or stops, two ample and regular turns, and at a speed less than the average maintained in the race characterized as safe? Is it because of the perfect policing of the 87 miles, for which we give the Germans all due credit? If so, it must be a confession that our automobile clubs cannot police a mile track as efficiently as the German Club covered 87 miles. Rather too humiliating a confession, it seems to me.

This form of competition—on the Ormond-Daytona Beach—is of such nature that even the fair sex may indulge. Barney Oldfield last winter treated a lady to an ocean-side ride that made her an enthusiastic motorist forever.

Even more might be said of the benefits accruing from racing did my space permit, which, fortunately for all concerned, it does not. So I leave this side of the case in your hands to be presented in fairness to your readers as you see fit.



THE SAFE KIND OF RACING

The Question of Track-Racing

By A. G. Batchelder

(*Continued from page 68.*)

mile-a-minute gait, the chief advantage of a two-mile track, and especially of one made circular instead of oval, would be that the radius of curvature would be so great that a banking of not over 10° would be as effective as 45° in the other case.

The fact that Oldfield and, it may be, other good racing men—perhaps Mr. Garbutt himself—have by skidding gone about curves of not over 100 or 200 feet radius without being killed in the process, does not argue that such a stunt is safe, or anything but very dangerous. And, in so far as the latest Gordon Bennett race proving that it is perfectly safe to make turns of small radius at high speed, exactly the contrary was proved. Mr. Garbutt states that he has seen Oldfield make such a turn at the rate of ¼ of a mile in 13 seconds; I myself have seen Oldfield make a half mile in 26 seconds (officially timed and on record), in which he made a turn, by skidding, of certainly not greater than 100 feet radius. Certainly no such hair-raising exhibition of foolhardiness and daredeviltry, at a speed figuring about 70 miles an hour, was necessitated by the conditions of any Gordon Bennett race, and it is doubtful if in a Gordon Bennett race such a thing ever occurred. The very facts stated by Mr. Garbutt, that the latest Gordon Bennett race involved "hurried stops and rapid accelerations" and "a maximum speed of 90 miles an hour" is exactly what makes such races safe by comparison with the hazards of track racing. For it is the comparatively safe speeds of 90 and even 100 miles an hour on absolutely smooth, level, uniform, and unobstructed straightaway stretches that make it possible to take curves slowly enough to avoid great danger (certainly slower than 70 miles an hour for curves of 100 feet radius), while yet averaging close to 60 miles an hour for a distance of 350 miles.

Regarding my statements in the July MOTOR bearing upon "motor madness," I think I can concede, without affecting anything hereinbefore refuted, that my "knowledge of medicine" would not warrant the placing of all prominent racing men in madhouses. Nevertheless, prominent and reputable physicians have made out a very fair case that there does exist something akin to a "delirium of speed," and I cannot see that such would be necessarily inconsistent with a chill in the blood and also a mental alertness that conceivably might make a risk slightly less than it otherwise would be. Sleepwalkers, with their brains dormant, have performed wonderful feats of equilibrium, but I am not aware that they are better able to perform the same feats when they are in their sane, waking minds.

After reading this, I trust that Mr. Garbutt will recognize that my so-called "superficial and extreme views" are given space chiefly that people less well informed than he may not be tempted to countenance an excessively dangerous pastime, which is likely seriously to impede the progress of motoring by the false impressions that foolhardy risks and terrible accidents place in the public mind. It is not a question of the right of individuals, having the mind and the money for such sport, to secure for themselves tracks upon which to practice it privately. It is a question of the folly and futility of exhibitions in which a premium is placed upon the reckless manipulation of high-powered racing juggernauts, which in only too many instances are not even automobiles, the good name of which they usurp, and literally and figuratively drag in the dust.

Doubtless Mr. Garbutt and others will continue to contend that they have a right to take chances on being spectacularly projected into the hereafter through the instrumentality of their "red devils" and "pink fiends," as do others by the more classic methods of rocking boats and fooling with guns that are not known to be loaded. For my part, I consider it only common charity to warn the uninformed, both among spectators and contestants, that motor racing on horse tracks is every bit "as fierce as it looks."

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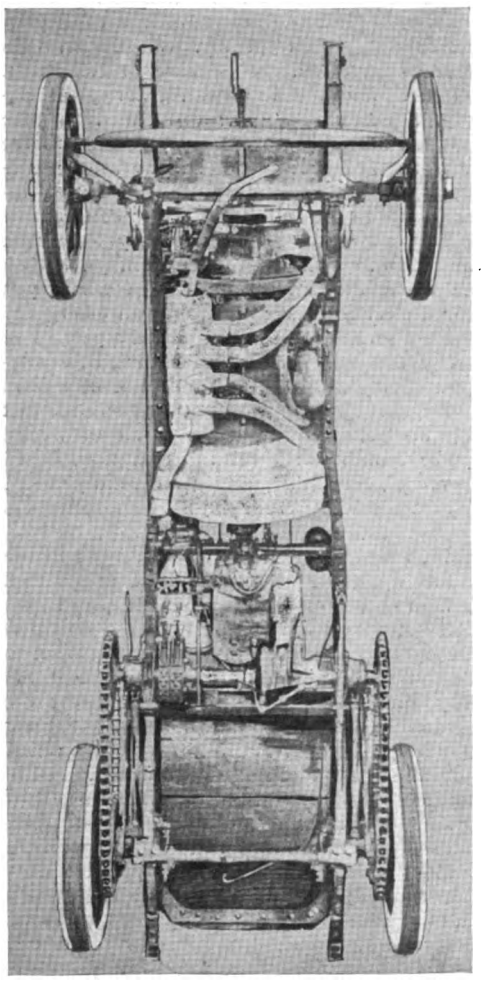
Details of the Cup Winner

(*Continued from page 42.*)

there is a pedal to throw the governor out of action, while the usual throttle lever is mounted on the steering wheel.

A mechanical lubricator containing ten cam-driven pumps positively feeds any desired amount of oil to the different engine and transmission bearings.

The clutch combines the usual leather-faced cone and flywheel seat, with a positive-locking device consisting of six steel lugs that pass into engagement with any six out of thirty-six holes bored in the face of the fly-wheel.

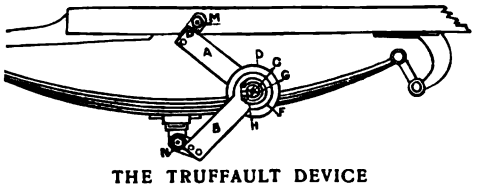


A VIEW OF THE CHASSIS FROM BENEATH

The change-speed mechanism is a sliding gear of the ordinary pattern, affording three forward speeds and reverse.

The frame is of pressed steel, and there is no false frame, the motor and transmission both being carried by the main frame sills. Tubular nickel-steel axles are used, with Lemoine steering pivots. The lower pivot bearing carries the weight and is provided with a set of balls. The upper bearing is plain.

The springs, front and rear, are fitted with the Truffault device, which largely reduces the jolting occasioned by rough or fast going. This device, as shown by the accompanying illustration, consists of a toggle joint, the two



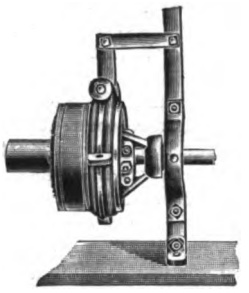
THE TRUFFAULT DEVICE

members of which, A and B, are clamped together upon a leather friction disk, and at their outer ends attached to the axle and the frame respectively. The springs are thus permitted to compress quickly, but rebound gradually.

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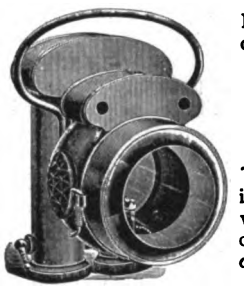


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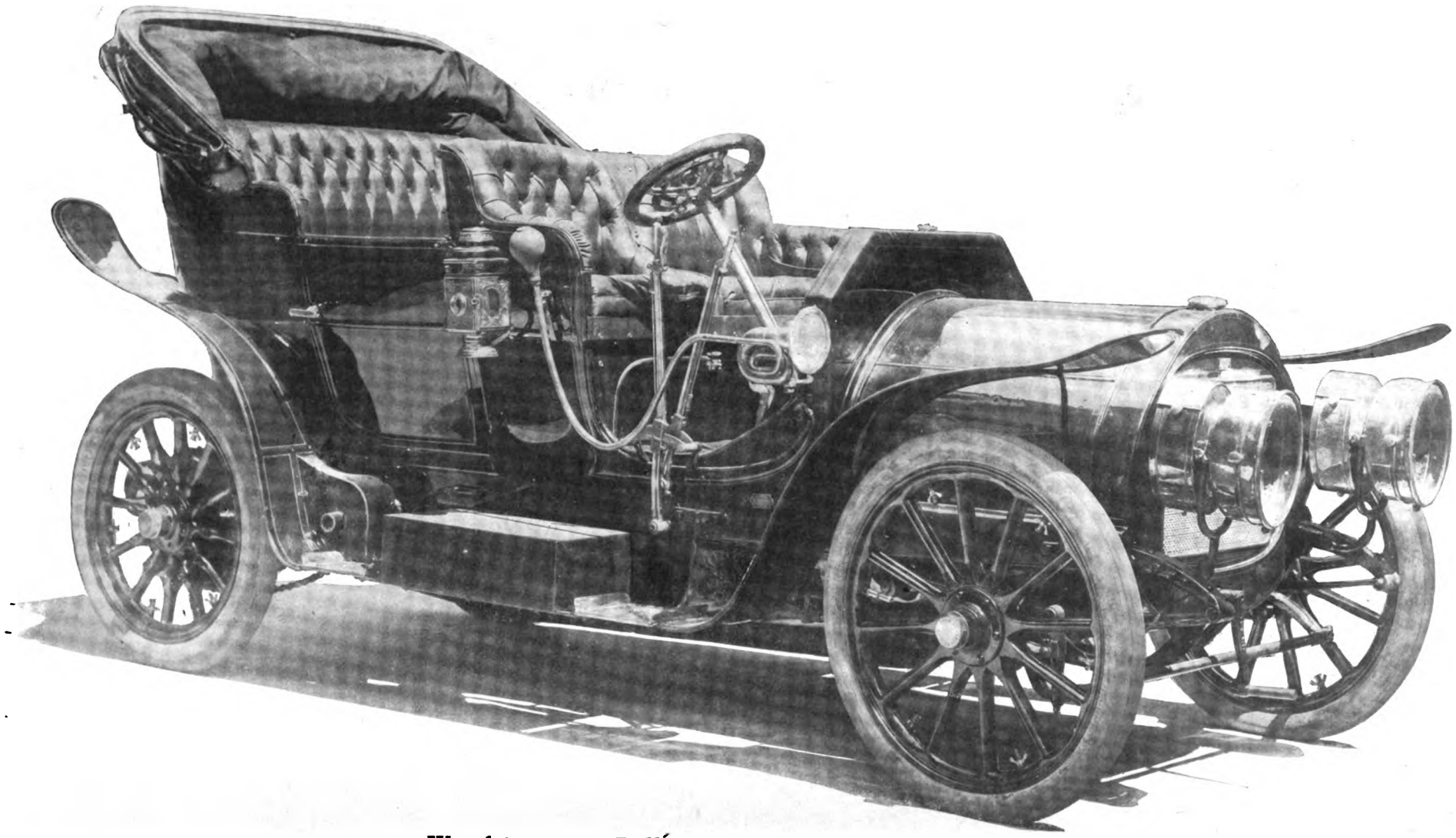
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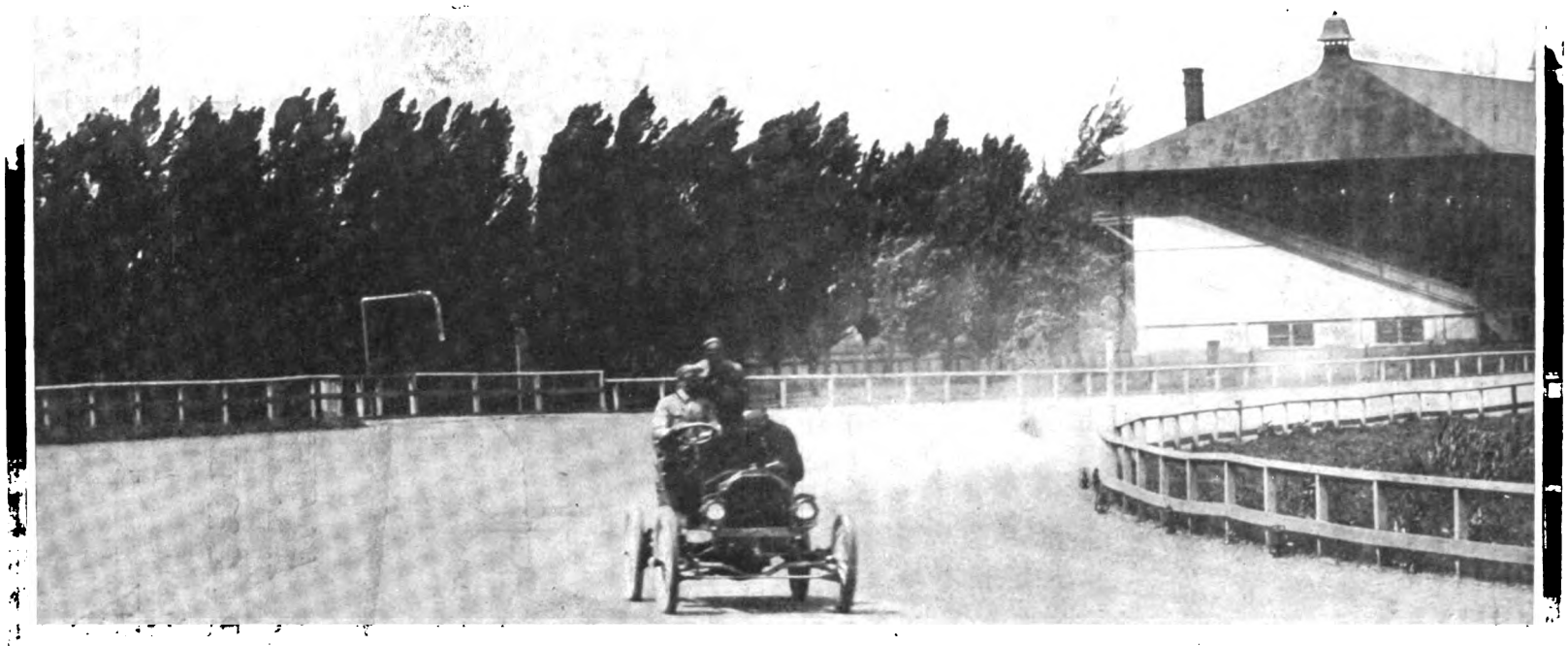
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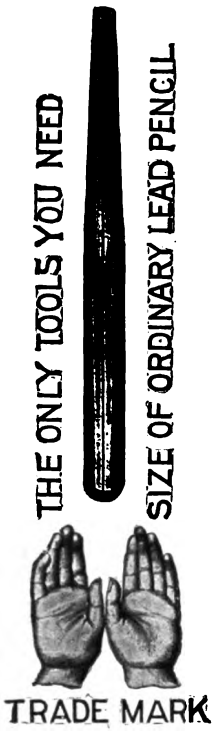
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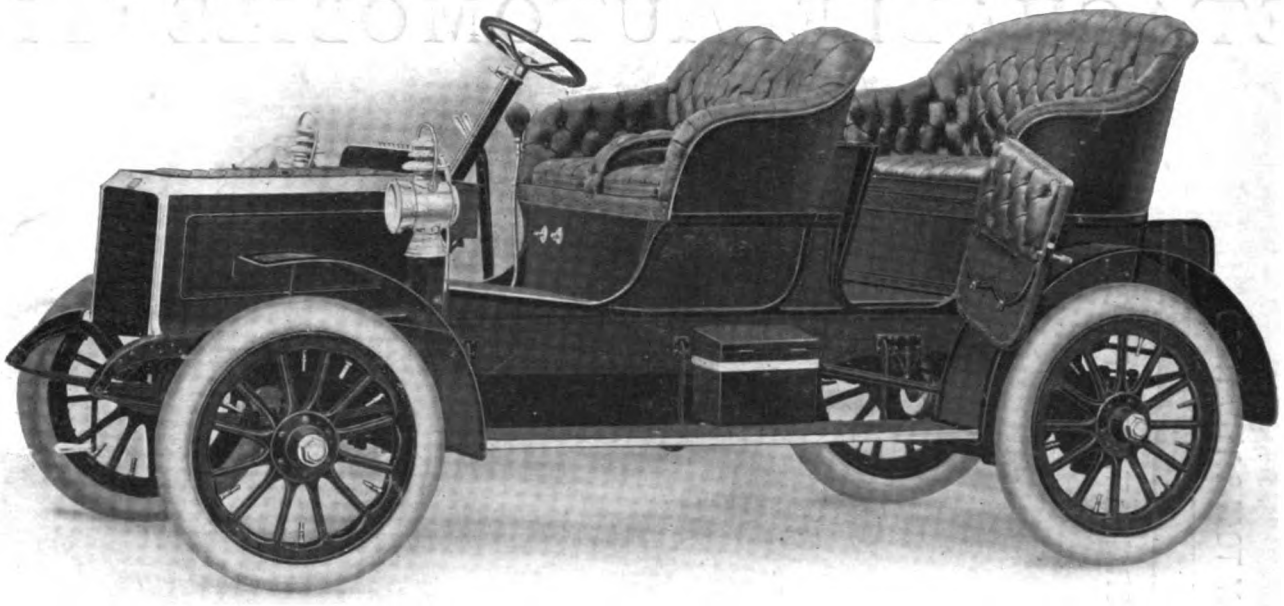
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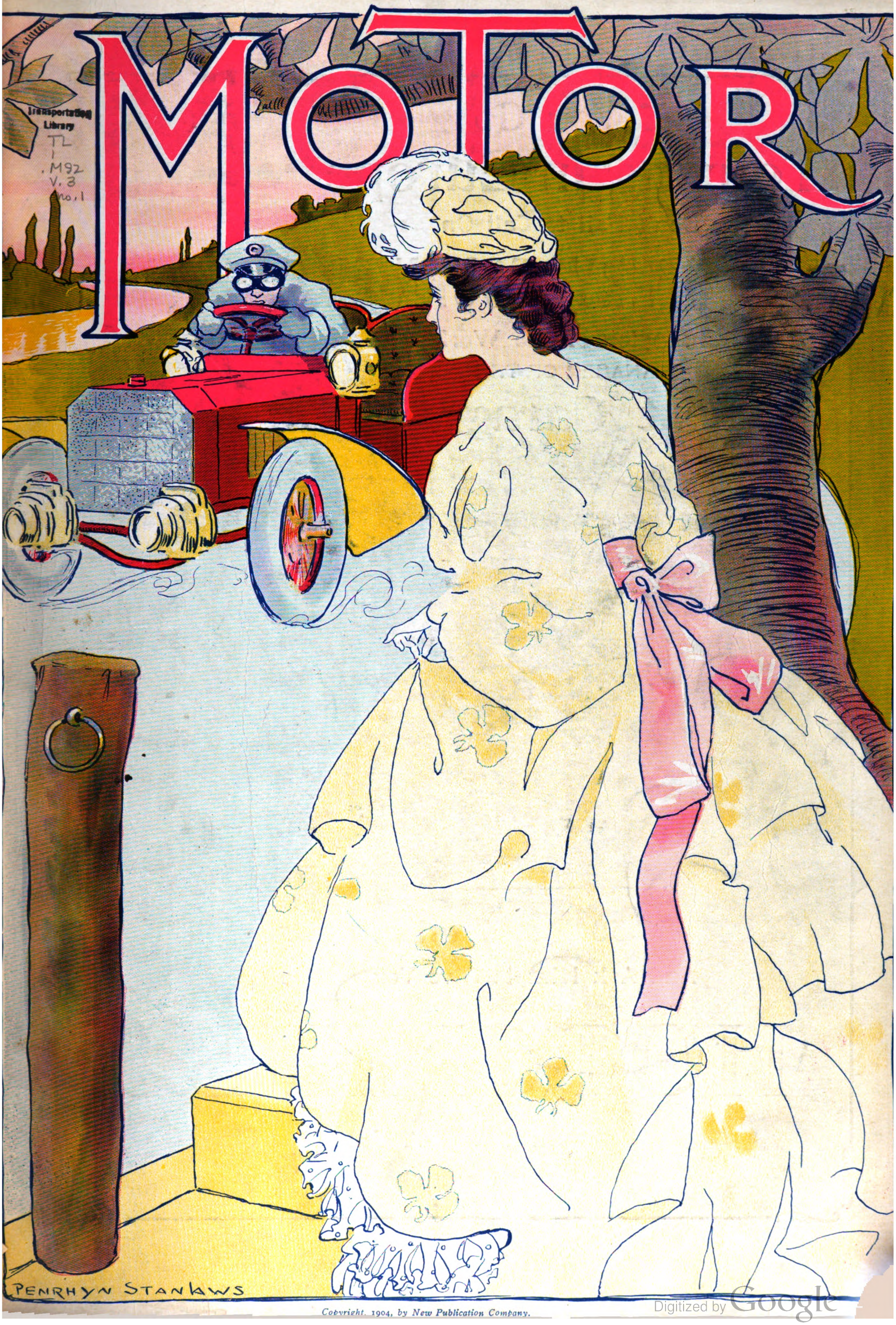
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Don't Fail to Call On

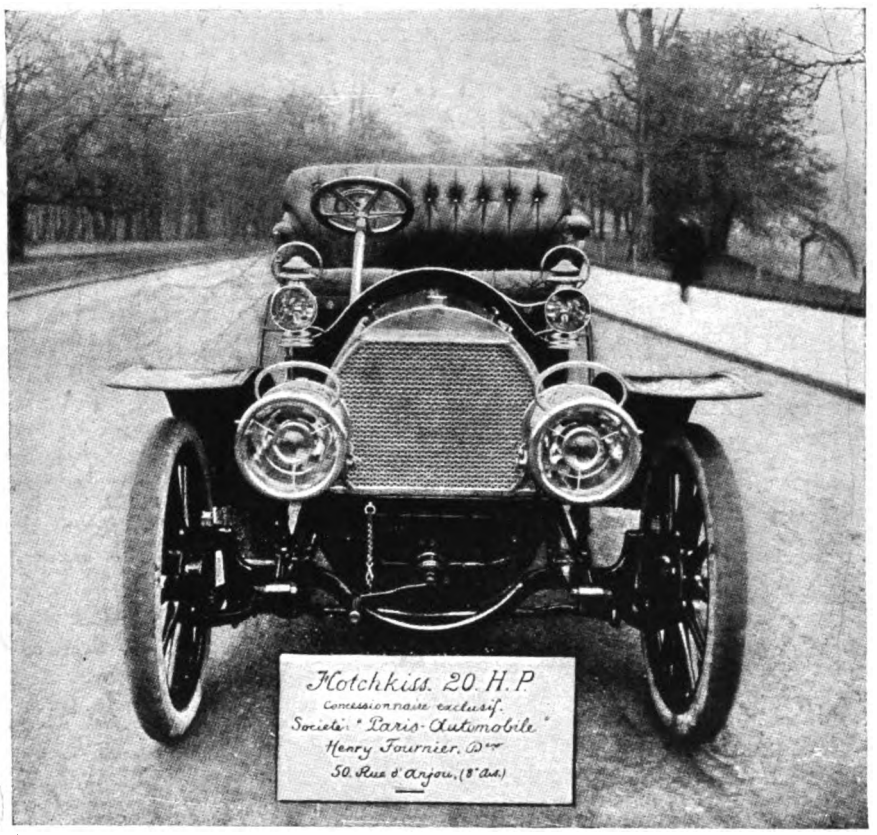
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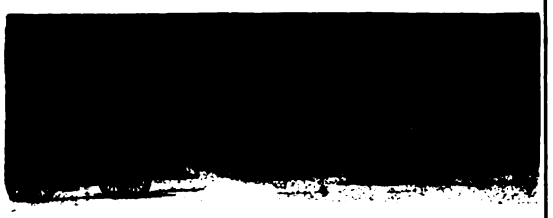
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Answers were received from every State in the country, and from Canada, Mexico, and Europe. Were it not for the lack of space we would print the names of every one who tried to name the cars, whether successful or not. As it is, we publish only the prizewinners and a few of the hundreds who named the cars correctly:

Following are the names of the prizewinners:

1st Prize—JONES SPEEDOMETER—H. W. Longfellow, Jr., 44 Fuller St., Brookline, Mass.
2d Prize—An AUTOMOBILE CLOCK—Miss Marie Boyd, 59 Meeting St., Charleston, S. C.
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MOTOR will give absolutely free a $3,000 motor car—a Winton Quad—to the subscriber who makes the closest calculation of the records that will be made at the Ormond-Daytona race meet. For the 499 next nearest calculations other prizes will be given, viz., searchlights, horns, lamps, etc., etc.

This is a fair, honest contest and a valuable mental exercise for intelligent people. It does not require any technical knowledge of motoring—the novice has the same chance as the expert mechanician. It would seem almost impossible not to win one of the many prizes, if one studies the former records made over the same course, and gives due consideration to the recent improvements made in motor-car construction.

[redacted] Ormond-Daytona Meet:

COUPON NUMBER 1.

(Must be mailed before October 31st)

MOTOR
1789 Broadway
New York City

Below are my estimates of the records that will be made at the Ormond-Daytona motor-car races:
(Give fractions of seconds in fifths.)

1 mile	time	—	minutes	37 1/5 seconds
5 miles	time	3	minutes	29 3/5 seconds
10 miles	time	6	minutes	46 4/5 seconds
50 miles	time	40	minutes	48 1/5 seconds

Name Edward F. Kassay

Address 46. West 75th street. New York City New York

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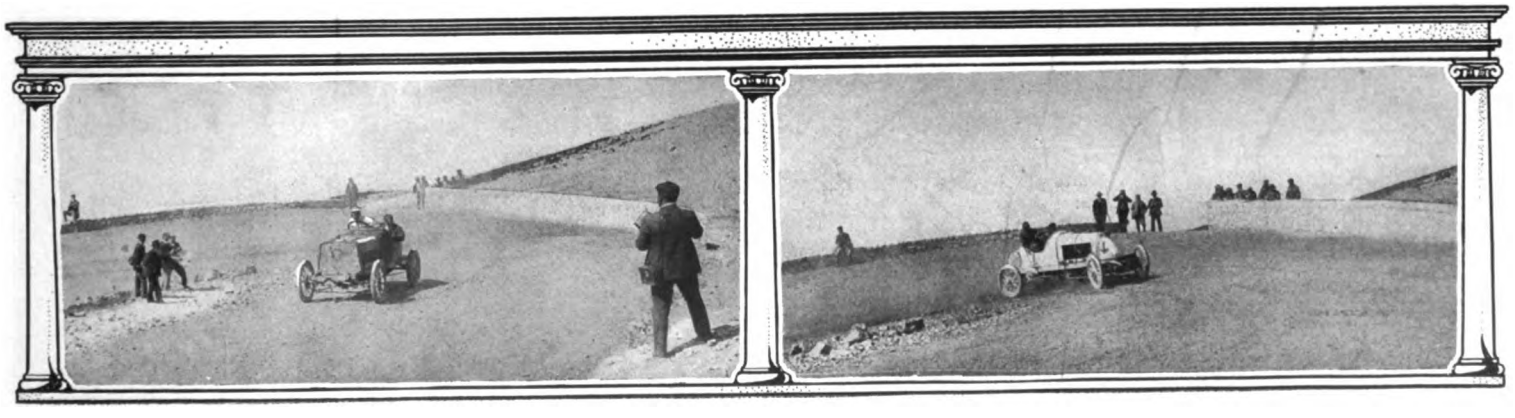
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FILL OUT [redacted] AIL TO-DAY

they have never led. With a good purpose and the strength of enthusiasm, others, too, [illegible] "sappers and miners" of the victorious motoring army. There is always room in the van, and MOTOR would welcome the additional enthusiastic energy of another or two.

The oil-feed of MOTOR's advertisers, working freely, has kept every part in perfect lubrication. The most astute and careful advertisers in the trade are now spending more money in MOTOR than in any other motoring publication—this, when the magazine is only a year old. It is our endeavor to convince every advertiser of MOTOR's purpose—and the accomplishment.

The whole chassis of get-there-ness is as strong as when we threw in the clutch for the first issue. There have been no punctures of MOTOR's purposes, no accidents—just a steady catching up with Success.



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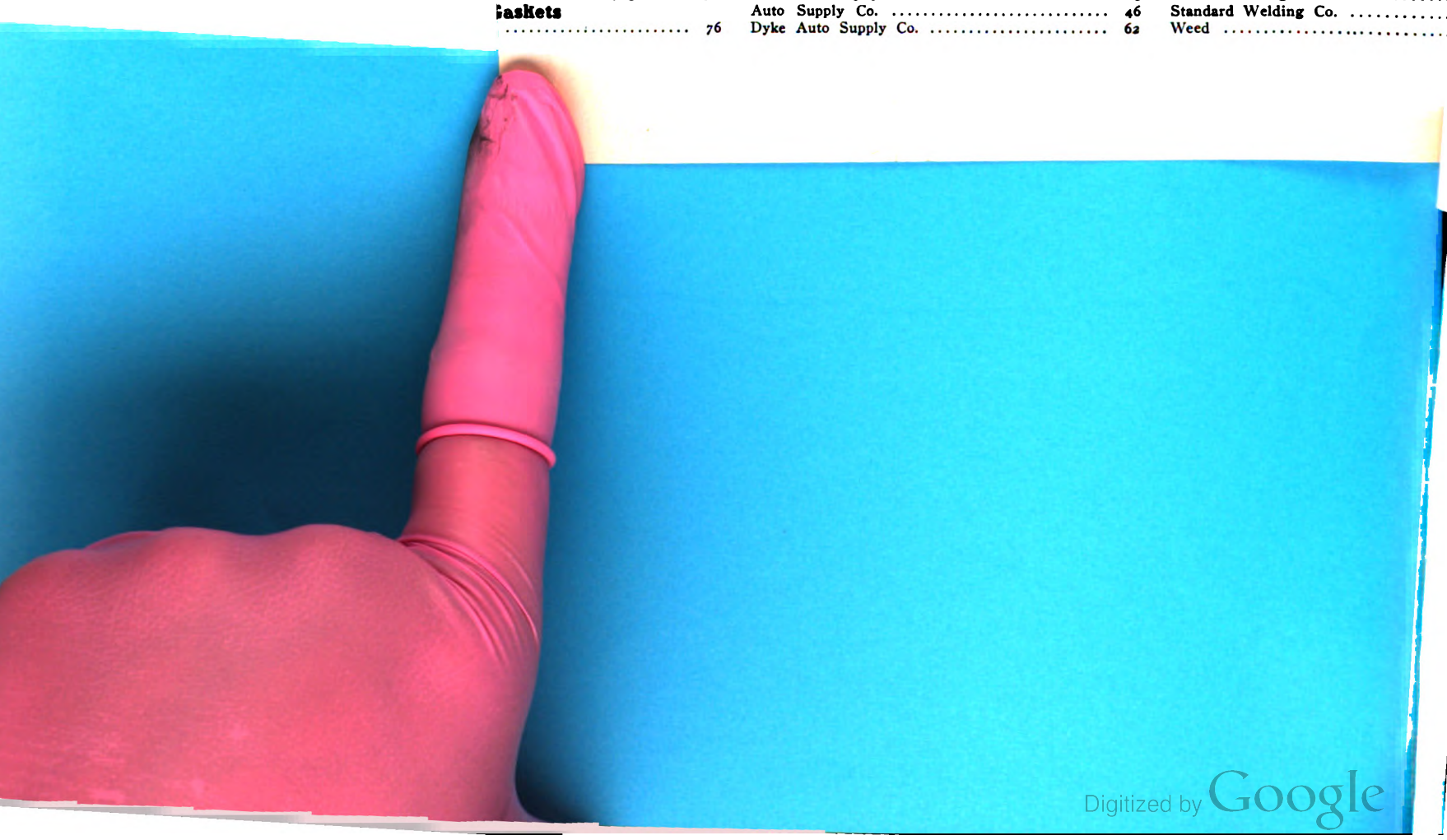
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Records made at the last Ormond-Daytona Meet:

(Keep for reference)

1 mile	**time**	**39 seconds**
5 miles	**time**	**3 minutes 31 3-5 seconds**
10 miles	**time**	**6 minutes 50 seconds**
50 miles	**time**	**40 minutes 49 4-5 seconds**

DO THIS NOW

Write your name and address and your estimates in the coupon below and mail it *to day*—*It must be mailed before October 31st.* We will acknowledge the receipt of it and send you full and complete details of the contest—answering the many questions which may arise in your mind. The next three issues of MOTOR will also contain coupons, and each subscriber is allowed to send in one coupon each month. If you mail this one to-day—before you forget it—you will have four estimates in all. *Your to-day's estimate may win the $3,000 automobile, so*

FILL OUT —— CUT OUT —— MAIL TO-DAY

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There are two sections to every magazine—the editorial and the advertising. Neither is more important than the other. The reader buys a magazine for the interest which the editorial section has for him, and he expects the advertising section to be an *information bureau* of his needs.

The advertising pages of this issue of MOTOR should be as carefully read as the text pages, because they are its readers' *information bureau*. If you wish to buy a motor-car, you will find the standard makes advertised in MOTOR. If you wish tires, lamps, motor-car accessories, etc., you will find only the standard makes of anything represented in MOTOR's advertising pages.

Never hesitate to write to advertisers for more complete information than the advertisements contain. You incur no obligation, if you do. And when you do, kindly mention MOTOR.

For information about anything not in MOTOR,, write us and we will see that you are informed.

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A Monthly Magazine Devoted to Motoring of All Kinds.

Published by New Publication Company.
NEW YORK, BOSTON, CHICAGO, SAN FRANCISCO, LOS ANGELES
Entered as second-class matter at the New York, N. Y., Post Office, March, 1904.

Principal Address: 1789 Broadway, New York
Branch offices: Chicago, 214 Madison Street; San Francisco, Hearst Building, Market Street; Los Angeles, Examiner Building; Boston, 82 Summer Street; London, 5 New Bridge Street, Ludgate Circus, E. C.; Paris, J. Milton, 17 Rue Brunel.

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Subscription, Three Dollars ($3.00) Per Year.
Cable Address: Motoria *Telephone: 3900 Columbus*

Postage free in the United States, Canada, Mexico, Hawaii, Porto Rico, and the Philippines. Postage in other countries, $1.00 per year extra. Address business communications and make checks payable to MOTOR. Anything connected with the editorial department should be addressed to the editor.

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MOTOR is proud—very proud—honestly proud—justly proud. Please pardon MOTOR for its jubilation. It has accomplished something. It has caught up with Success, shaken hands with the swift-footed old gentleman, and has received a cordial welcome from him.

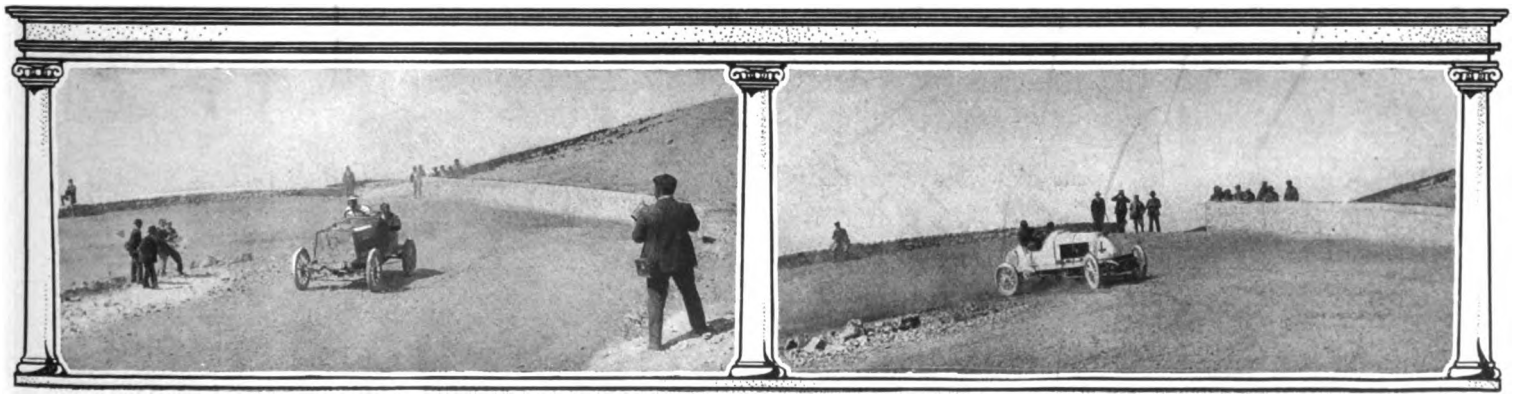
From the moment we threw in the clutch, MOTOR eclipsed every record ever made in publishing, completely outdistancing its rivals, and now, with its 50,000 reader-power, is reeling off new records at a terrific pace. To-day, MOTOR, a year old, has a larger circulation than any two other motoring publications in the country, and soon will have a circulation greater than all the others.

Our engine of circulation-getting has never once missed fire; it has no sooted plugs, or run-down batteries, or poor contacts, or choked carbureters.

MOTOR has gone straight ahead on its tour without brook, let, or hindrance of whatever kind. It has not followed the beaten highways and byways common to the average motoring-publication tourist; it has boldly struck out—a pioneer—along news ways which others may, perhaps, follow, but in which they have never led. With a good purpose and the strength of enthusiasm, others, too, may be the "sappers and miners" of the victorious motoring army. There is always room in the van, and MOTOR would welcome the additional enthusiastic energy of another or two.

The oil-feed of MOTOR'S advertisers, working freely, has kept every part in perfect lubrication. The most astute and careful advertisers in the trade are now spending more money in MOTOR than in any other motoring publication—this, when the magazine is only a year old. It is our endeavor to convince every advertiser of MOTOR'S purpose—and the accomplishment.

The whole chassis of get-there-ness is as strong as when we threw in the clutch for the first issue. There have been no punctures of MOTOR'S purposes, no accidents—just a steady catching up with Success.



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The Road to Lakewood.

DOWN THE JERSEY SHORE, BETWEEN POINT PLEASANT AND LAKEWOOD, THERE IS A NINE-MILE STRETCH OF NEW BOULEVARD THAT COULD HARDLY BE IMPROVED UPON. MOTORISTS ARE BECOMING AWARE OF ITS EXISTENCE, AND IT IS NOW TRAVERSED DAILY BY AS MANY MOTOR CARS AS HORSE-DRAWN VEHICLES. F. W. STOCKBRIDGE'S FRANKLIN CAR IS SHOWN IN THE PICTURE. PHOTOGRAPH IS BY T. K. HASTINGS.

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MOTOR

DEVOTED TO MOTORING OF ALL KINDS

Vol. III. No. 1 OCTOBER, 1904 Price, 25 Cents



Through Alpine Passes

By Harry S Woodworth

America must be left behind and Europe reached before the best pleasure of motor roading can be enjoyed. This is a conviction of experience, for I have tested both countries over many long and short drives with my Panhard-Lavassor car. If more men than one, Charles J. Glidden, have made as long continuous tours in Europe as mine of last year and this, I have yet to hear of them. The two trips totaled about 9,000 miles, were through sections of several countries, and, besides touching unnumbered cities and villages, included eleven Alpine passes, some of which had not before been attempted with a motor car.

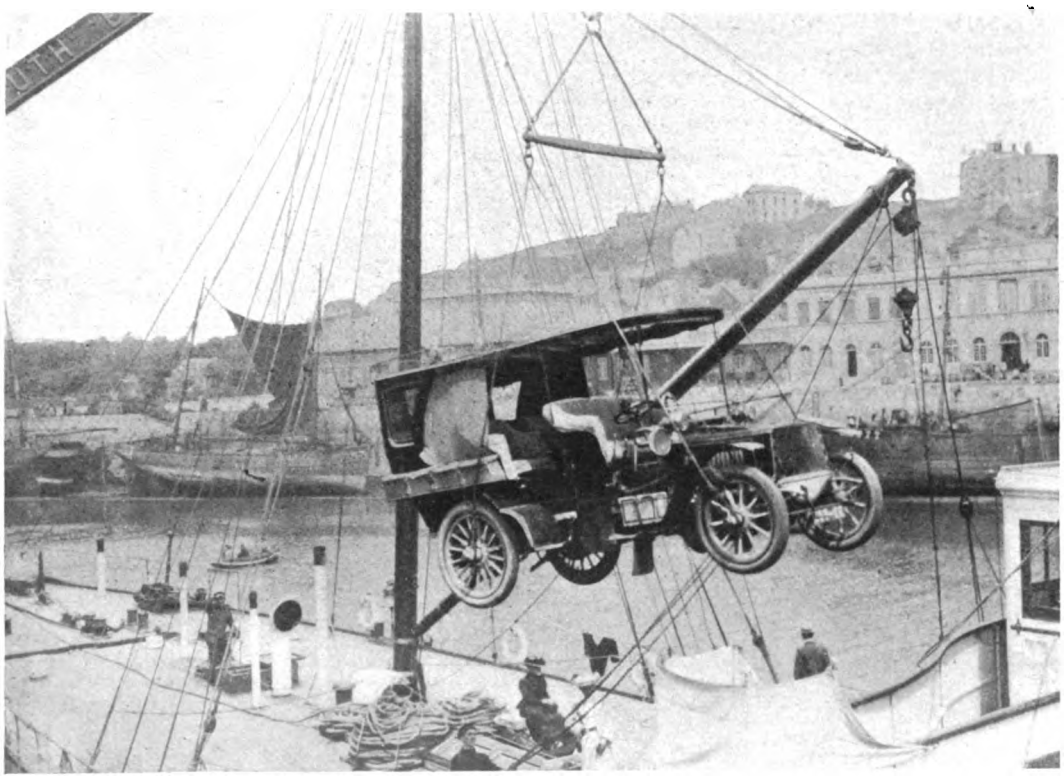
No exhilaration of any kind of travel is equal to this climbing and descending dizzy heights in the horseless car, with Alps on Alps above and deeps over deeps below. If the possible dangers are somewhat intimidating, they give an added zest to the riding and the memories afterward. Four of the mountain passes were penetrated last year and seven this year—the Fergus, Ternova, Semmering, Zirl, Mt. Cenis, Tonale, Mendel, Brunig, Brenner and two others of less note.

America is too young, and nearly all its roads too rough or too soft for the keener satisfaction in our new riding luxury, and our country lacks the romantic remains of the ancient civilizations, from the early Roman to the renaissance and feudalism — remains seen in architecture, ceremonials, domestic customs and costumes, and other inheritances of a very remote and medieval past. While our vast country has varied and impressive scenic attractions, and its roads are now being rapidly improved, Europe must long continue to be the favorite touring ground of the motorist, productive of the most unbroken pleasures and also of the fewest swear words.

My trip of last year was described and illustrated in MOTOR of November. The trip of this year included cities and large villages, but was made more interesting by extended and exciting mountain experiences. The party, besides myself, consisted of Mrs. Woodworth and our daughter, Marguerite, Mrs. S. E. Stevens, and Miss Florence Williams, all of Rochester.

We started from Paris, May 12, and our final stop was at Liverpool, where we boarded the steamer *Campania* for New York, July 2. We took in parts of France, Italy, Austria, Germany, Switzerland and England, and among the places that we passed through were Sens, Auxerre, Avillon, Macon, Lyons, Modane, Turin, Milan, Cernobio, Colico, Edolo, Botzen, Klausen, Brixen, Innsbruck, Immstadt, Egg, St. Gall, Zurich, Luzern, Interlaken, Berne, Lausanne, Geneva, Gex, Jura, Montbard, Boulogne, Madstone, Rochester, London, Oxford, and the towns en route through Wales to Liverpool.

The French macadam roads are a delight to the motorist, and have been made more interesting by the efforts of the Automobile Club of France, which has caused some of them to be improved, and signs to be put up marking every short turn and steep descent. It is an active club, and one as efficient is needed in America. In France we rode with smiling content through one of the richest and most thoroughly cultivated agricultural regions in the world. There is a peculiar charm in the quiet landscapes and quaint people, with many varieties of growing crops on the small farms, averaging perhaps ten acres each, spots of open woods carefully guarded against defacing intrusion, thrifty-looking dwellings and outhouses, industrious men, women, and children engaged in tilling, choreing, cooking, and washing. Every inch of available land seems to be utilized, the soil is fed from year to year with the food which it most needs, and every possible care is taken to produce growth and preserve production. On these little farms this toiling peasantry is the chief financial strength of France. Its restoration after the Franco-Prussian war would have been slow instead of rapid except for the generous small subscriptions to its loans. They were bled many millions of francs by the De Lesseps Panama Canal scheme, but recuperation was



HOW THE BIG PANHARD WAS LOADED AT BOULOGNE

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A TUNNEL ON THE ROAD BETWEEN INTERLAKEN AND BERNE

swift, and prosperity continues. Miss Anthony might find weighty facts among them for her woman's rights doctrines, for the women are generally dominant on the farms and in the village stores and marts—hold the purse strings, make the bargains, and supervise operations without and within doors.

The objects of interest indicated presented inducements for slow driving and frequent pauses, but the hard macadam roads were a temptation to occasional, perhaps illegal, bursts of speed which caused the inhabitants to stare and slightly diminished the number of their dogs and fowls. It so happened that our drive from Avallon to Lyons was on Friday the 13th—an ominous day and date according to tradition, although many great and beneficent events are recorded in their favor. But the devils of superstition seemed to be after us on that particular Friday, for we punctured two tires, killed a good dog, and lost a valuable watch.

It was Sunday, May 15, when we reached the Italian frontier, and found that the customs official had gone a-fishing. While we impatiently waited three hours for his return before we could legally proceed, we mentally revised our creed by inserting an article forbidding custom-house incumbents to fish on Sunday. We received our permit at noon, and were soon wheeling up the Mt. Cenis pass over a good road with a 10 per cent. grade for thirty kilometers to the summit, 6,700 feet above the sea. The last 700 feet were through a snow cut, the sides of which were from five to eight feet high. There were some tremors which were not shivers along this ascent, from noticing chances for an upset and a fall down unknown depths. But we escaped accident, found the Italian custom-house prompt and obliging, and, by rapid wheeling, at 8 P. M. welcomed Turin, the cleanest, handsomest, and most enterprising city of northern Italy, with a hotel which it is a joy to remember. Its cathedrals and galleries were visited, and also a Turinian flower show, where there were varieties of exquisite flowers, some young girls more beautiful than the flowers, and where for a few cents we could load ourselves with the finest varieties of magnificent roses.



A TYPICAL SWISS VILLAGE

At Milan we took into consideration the prevalence of broken stone along the southward wagon roads, and decided to give our Panhard a rest while we made a diversion to Rome by railway. The packed car and sweltering heat were sources of much discomfort in going and coming, but ample compensation was found in the antiquities and other sights of the imperial city, where three days were spent in leisurely observation.

From Milan we drove to Cernobio, on Lake Como, and the fascinations of this

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delectable region held us three days. The lake was a splendid mirror for the shores and sky, the sky was a "blaze of blue" such as can be seen nowhere but in Italy, the atmosphere was clearer than the clearest crystal, and the magnificent mountains in view were an enchantment. The large hotels along Lake Como are well managed, and there are many charming Milanese villas. But it is no place for bathing, for there are no shallows along the steep, rocky borders and the waters are ice cold. We rode to and fro over the fine roads along and near the lake, visiting the points of chief interest, and lingered nearly three days with a strong inclination to stay three days longer. Como is but one of the numerous lakes, large and small, in northern Italy, each of which is a liquid gem embosomed in beauty.

Learning by telegraph that the Stelvio pass had not been opened, and would not be until the middle of July, we abandoned an intention to go to Bormio, and drove around the shore pass of Lake Como by way of Lecco to Colico and Edolo. It was a disappointment to be too early for the Stelvio pass, which is the highest in Europe—9,200 feet—and can be kept open only two months in the year. In the drive to Edolo we found the little village of Cunas high up among the mountains, surrounded by snow-covered peaks. It is a hamlet rarely seen by Americans, with dwellers of peculiar appearance and habits, and a peculiar old stone hotel with stone stairway. There are many old villages in Lombardy which retain their medieval characteristics, little changed except by the slow wear of time. The most of them have a single stone-paved street, with houses of stone close together on either side, and at the center an ancient fortress-castle. The people of this northern Italy are much more attractive than those of the middle and southern sections. They are larger, stronger and cleaner, and do not have the sad, fagged appearance of the southerners. Among them are many blondes, some with red or golden hair, and some of the men are Apollos in stately symmetry, some of the women Venuses and Hebes in gracefully rounded forms and delicate features. There is probably a sprinkling of the descendants of King Alaric's Visigoths and Ostrogoths, who conquered Italy in the early period of Roman decadence.



ROADS AND SCENES LIKE THESE ARE MANY

We left Edolo, May 25, soon crossed the frontier into Austria, and drove over the Tonale and Mendel passes, the latter of which has been called the most beautiful pass of the Alps on account of its dolomites, or red sandstone pinnacles, which rise hundreds of feet in an infinite variety of shapes. The summit of the Tonale is 6,500 feet high, and we have some very emotional reasons for remembering this pass.

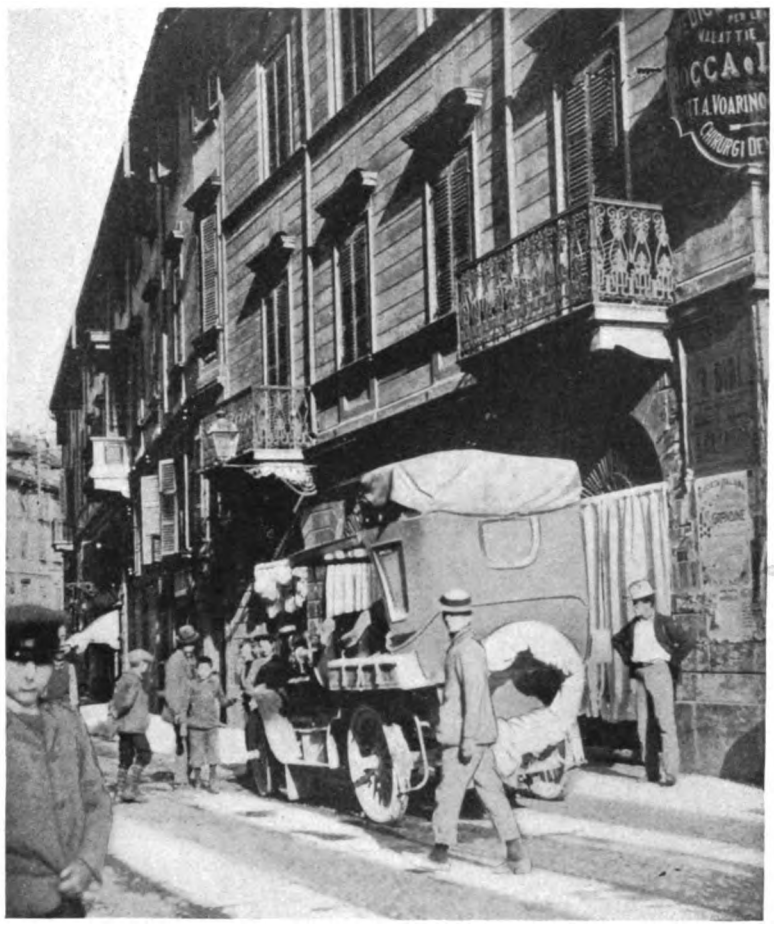
Although the day was neither Friday nor the 13th, it was our day for the worst mishaps. We killed a dog, punctured



A GRAND VIEW AND A GRAND ROAD THROUGH A CHARACTERISTIC ALPINE PASS

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a tire, blew up another tire, and came within a second of being crushed by an avalanche. The melting snow had loosened a mass of rock and earth, and when we were three-fourths of the way up we heard it start with a scraping roar directly above our heads. There were screams of fright as our car leaped on, and in five seconds more the avalanche of thousands of tons had crashed across the road and wedged the car against the outer wall, which partly gave way, threatening to plunge us down a precipice of several hundred feet. If the mass had fallen a moment sooner we would have been buried beneath it, and if it had pressed the wall a little harder we would all have been shapeless carcasses at the bottom of the precipice. The wall stood, and the revulsion of feeling from anticipated death to safety may be imagined. Some road-builders were found, and they procured a yoke of oxen which pulled the car from the wedge. It was an intensely agreeable surprise to find that its injuries were limited to two broken spokes, some bent rods and a few scratches. The needed repairs were made in a few hours, and at 8 P. M. we were in Botzen, the ancient capital of Tyrol, having made a day's drive of 186 kilometers in spite of the accident.



A TOUCH OF AN ITALIAN CITY

Botzen is about 3,000 feet above the sea, and its attractions, which included a Tyrolean play in a theatre, kept us two days, when we went over the Brenner pass to Innsbruck, Tyrol's present capital. This pass, although famous for beautiful scenery, with goodly valleys and rushing mountain torrents, was tame to us in comparison with others which we had driven over. We intended to compass the Alberg pass, but ascertaining that it was still snowed up, took a circuitous course into Bavaria—one over which no other motor car had been—up and down, up and down, through charming valleys and along sightly heights.

At Immstadt I was arrested by a German official in gorgeous uniform and fined thirty marks, on complaint of a milkman whose horse we had scared into a runaway, scattering cans, milk, and man along the road. The man was conciliated by proffers of double damage money and some cigars, and withdrew his charge. The episode did not mar our enjoyment of the many interesting scenes in southwestern Bavaria. In the little town of Egg the sign "Bad Egg" caused several smiles, but one of the party reminded the others that "bad" was the German word for bath. St. Gall and the Swiss custom-house were passed May 30, and Zurich, Switzerland's largest city, entered the next day. Luzern came next, and our rides along the charming roads of the vicinity, in view of scenery which has been celebrated in story and song, were better than our food and drink, although these were good enough. June 6 we drove to the summit of the Brunig pass, where the views are vast and the scenery sublime, and where remote objects are seen through a perfectly transparent atmosphere.

From the good hotel at this point we proceeded to Interlaken, and thence up the lofty Jungfrau on the new electric funicular railway, which is not completed and is to go eight miles in a tunnel through solid rock to the very top, with openings and platforms at intervals. It is one of the greatest engineering feats ever attempted by man.

The unique drive to Berne was partly through rock cuts and tunnels. Thence to Lausanne and Geneva, up over the Jura by way of Gex, and on to Montbard, where we arrived hot, tired and dusty after a ride of 343 kilometers, the longest we made in one day.

While in Switzerland we crossed the valley where hereditary goitre prevails. Among the crowds that gathered around our car not more than one in ten was free from the deforming malady. Some of their odious neck enlargements hung down over the breast, and some extended out to the shoulder, and incipient bunches were noticed on the necks of small girls and boys.

We were in Paris again June 17, and June 21 proceeded from there to Boulogne, where our huge Panhard was deftly swung aboard the boat by means of steam power and tackling, and with it we were borne across the channel to Folkstone. We wheeled to London by way of Madstone and Rochester, with a pause in Rochester to look at her old cathedral and innumerable tame pigeons. In London a dozen hotels were visited before sleeping accommodations could be found for our party, and then, at the Grand Central, we had to submit to cot beds in the drawing-room. After viewing some of the sights of London for a few days we made a quick drive by way of Wales to the harbor of the ocean liners with anticipating thoughts of the ocean voyage and home returning.

The ride from London to Liverpool was so delightful that we silently planned a roundabout tour through England, Wales, Scotland, and Ireland for the near future. Although the English roads are narrow and crooked, they are smooth and hard, and the motorist enjoys them the more because the scenes are everywhere so charming, with old castles and mansions, blooming gardens and wide-spreading lawns, extended hedges and magnificent trees, rank vegetation and fine horses and cattle, all cared for with watchful intelligence.

It should be added that in this year's trip we found the roads good almost everywhere, the mountain passes included, and only a few short distances in which they were so poor that they might be called bad. The Alpine passes are recommended as affording the most inspiring satisfaction, but should not be attempted except with strong and powerful motor cars.

Until one has toured Europe in a motor car, the pleasures of such a trip are incompletely anticipated, even by the enthusiastically inclined. To ride mile after mile from early morn until late at night, and then to know that on the morrow the same inviting highways are at your disposal, makes one sleep the more soundly. Probably very few of us appreciate the great influence which the motor car is going to have upon American roads. In the near future there will come such a powerful demand for the betterment of our highways that the tardy legislators will be awakened with a jolt. May that day come with record-breaking speed.



A SHARP TURN IN THE MT. CENIS PASS

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WHEN THE CARBURETER BALKS

By Igniter

With a gasoline engine one of the commonest sources of trouble is the carbureter—the device that supplies a properly-proportioned explosive mixture as a source of power.

Gasoline vapor gives its most powerful explosion when mixed with about eleven times its bulk of air. A slightly greater proportion of air causes a quicker, though slightly less powerful explosion, and in consequence is probably somewhat better for an engine running at high speed. But, aside from this minor exception, any variation in the proportion of a mixture, it being either stronger or weaker, is sure to cause trouble, and, if very great, will render the mixture non-explosive.

The chief symptoms of carbureter trouble are overheating and loss of power, either accompanied by or not accompanied by missing of explosions in one or more of the engine cylinders. Since conditions similar to these often arise from uncertain ignition, it is necessary, in determining whether carbureter or ignition is at fault, to make tests in a way to differentiate between the two sources of difficulty. Moreover, as carbureter or ignition troubles may simply cause imperfect operation, or may be so serious as to cause absolute stoppage, it is not possible to apply the tests that are suitable in the first case to a motor that refuses to operate at all. Also, it may happen that ignition and carbureter troubles arise simultaneously, in which rather unlikely circumstance the problem of ascertaining the difficulty is less simple.

Missing of explosions may stop an engine completely, or may simply produce loss of power and an irregularity in the rhythm of the exhaust that is instantly to be detected by any one familiar with the normal sound of the motor.



THE TROUBLE THAT CAN RESULT FROM A TRIFLE

If an engine stop on account of carbureter trouble, there must be either total cessation of the fuel supply, or the mixture must be so weak or so strong that it will not ignite.

A mixture thus faulty is very unlikely to exist if a carbureter of modern design is used, for which reason the trouble consists more likely in some obstruction of the fuel feed. It may be that the pipe leading from the gasoline tank to the carbureter is clogged up, or that in some other portion of the carbureter the foreign substances are present.

The fine wire-gauze strainers that are used in many carbureters are exceedingly likely to catch particles of lint, dirt, etc., until the fuel passes through them slowly, if at all. If such a condition of affairs be suspected the carbureter must be taken apart sufficiently to permit access to the gauze. Then, if after careful cleaning and scraping the trouble still persists, it is due to some other cause. An obstruction of the flow in a float-feed carbureter is always to be suspected when the engine runs all right for a few minutes after a prolonged stop, but appears not to receive enough mixture for continued running. In such a case it is likely that the fuel from the tank trickles very gradually into the chamber during a period of rest, but does not come rapid enough to keep it full when the engine is taking its accustomed supply. The time that the engine will run without a stop therefore is determined by the quantity of fuel contained in the float chamber—rarely enough for more than a few minutes of average running.

Water sometimes condenses in the float chamber of a carbureter, especially in cold weather, even the best gasoline frequently containing a minute percentage of this liquid. The result is that the water, being heavier than the gasoline for which the weight of the float was calculated, raises the float too high, keeping the gasoline shut off. At the same time, water is atomized into the mixture, reducing its power and explosiveness. It may even happen that the differences in specific gravity between different gasolines is sufficient to upset the proper functioning of a float, keeping the fuel shut off or permitting it to flow too freely, depending upon whether the fuel is heavier or lighter than normal. In these cases, the fuel either will overflow or will stand too low in the atomizing nozzle.

The needle valve, by which the float controls the flow of fuel into a carbureter, may stick in its seat, or fit it unevenly. In the first case, the flow is wholly or partially obstructed; in the latter it cannot be shut off, and the carbureter will flood—overflow at the atomizing nozzle—causing it to give too rich a mixture.

Water in in a carbureter may even freeze in cold weather, rendering the device inoperative. The best remedy for this is warming by hot gases diverted from the exhaust.

To correct a leaky needle valve, it must be ground into its seat with some abrasive until it is a perfect fit. This is done by twirling the point against the seat with fine emery, grindstone dust, or powdered glass, preferably the last, until both point and seat fit closely together. In the absence of any better means the twirling may be effected with the fingers, but most carbureters have a slot in one end of the float rod, to receive a screwdriver.

Solid sediment of any sort will derange the best carbureter, and careful filtering of all fuel before it is placed in the tank, and regular and thorough cleansing of the carbureter after every 500 or 1,000 miles' running, are the only sure preventives of trouble from this source.

Too weak a mixture is due either to an excess of air or to a shortage of gasoline, both of which bring about the same result. In some compensating carbureters, it is possible that the auxiliary air inlet, controlled by suction, exhaust pressure, water pressure, or other means, may be opening too freely, in which case readjustment is required, the manner of it depending upon the design of the carbureter. Obstructed pipes, closed needle valves, and too high a float already have been referred to as causes of inadequate fuel flow. The only other likely cause is an obstructed nozzle. Some carbureters have positive valves acting on the nozzle openings, and these devices may become inoperative—bent, stuck, or out of adjustment.

So far, what has been said applies chiefly to carbureters of the float feed type. Those of other construction, however, are

(CONTINUED ON PAGE 66.)

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REPARTEE OF THE ROAD

By Tourist

The average motorist's disposition when out on the road seems just suited to an appreciation of repartee, whether he uses his machine mainly for business or wholly for pleasure, whether he tours in a small or large way. He usually feels good natured, and as soon as he gets into the open air the exhilaration of the sport comes to him. Then, too, his attention is called to a multitude of different objects and phases of human nature that cannot but arouse any spark of humor that lies dormant within him. Again, one feels a sort of irresponsibility of speech as he is whirled past some plodding wayfarer whom he never expects to see again, and there is the temptation to say what is uppermost in the mind.

One fine day in early summer the tourist and his wife were rolling along a good stretch of road away from the main highway—one of the side nooks well worth a detour to discover. On the left was a wooded pasture and on the right we came to a field of young but thriving corn. On the rail fence beneath a roadside beech sat the typical country boy of the "way back" type, his hoe lying on the ground near the edge of the cornfield showing his reason for being there. On his face the look of wonder seemed to give way to one of rebellion and resentment against the fate that condemned him to the prosaic task of hoeing corn while others, more fortunate than he, could ride about in a wonderful horseless wagon.

Being uncertain as to the way the tourist asked him, rather abruptly, perhaps: "Where does this road go to?" "No whar; stays right whar 'tis," was the laconic reply.

"Well," said the tourist, slowing up a bit, "where will I get to if I go along the road,

"You'll get to th' end of it if you go far enough," was the rejoinder.

And we rolled along followed by the derisive haw! haw! of a crow from the top of a neighboring tree.

Sometimes the replies one gets savor more of sulkiness than appreciation. One fine day in autumn we rolled along an excellent turnpike, and, deciding to do a little exploring, turned aside to follow a branch telephone wire, soon running into a little crossroads hamlet. It was election day, and a dozen men were loafing around the voting place, a combination of store, dwelling, and town hall. A little one side a cadaverous-looking individual, with a broad, shapeless, much-used felt hat of no particular color, a two days' black stubby beard upon his face, leaned against a telephone pole and industriously chewed his tobacco.

"Where does this road lead to?" inquired the tourist. "To hell," promptly came the reply, shocking only because of its unexpected abruptness, while his face lighted up with a look of conceited, almost demoniacal satisfaction. The tourist rallied, however, and replied: "By the looks of the place and the people, I should think we were near it now," and the power was turned on.

One will probably not always succeed in getting the best of these word encounters if he encourages them. On one occasion the tourist accompanied a friend into the country, and during the ride we toiled up a long and rather muddy hill, which taxed both motor and patience. Finally we reached the top and came to a farmhouse, with its accompaniment of barns and outbuildings. On the roof of a rickety shed a gawky youth was nailing a shingle here and there, where a patch was needed. Seeing another hill farther on, and not much cheered by the prospect, the tourist's friend caught sight of the youth.

"What kind of a country do you call this, anyway?" he yelled.

The fellow rested his hammer on the roof, looked at us steadily for about five seconds, and shouted back: "This ain't darn fool's reservation; you better go on."

And we did, only to find that the second hill was far worse than the first, and at the four corners next beyond (unposted, of course), we preferred to risk a guess as to the road we wanted rather than venture another inquiry in that neighborhood.

The roads of Illinois frequently lead into a veritable cul de sac. Recently the tourist asked a farmer as to the main highway to St. Louis.

"I dunno," he answered, "I gen'ly go cross-lots through them thar farms and hit the road 'bout twenty miles fu'ther on."



A PICTURESQUE WESTERN NEW YORK TOWN: WILLIAMSVILLE, A POPULAR RUN FOR BISON MOTORISTS



Photo by M. P. Rice

A QUESTION OF THE RIGHT OF WAY

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When the claim is made that Southern California affords the finest motoring in America, many readers naturally will be disposed to question the claim. But those who are fortunate enough to investigate, become, without exception, heartily in accord with this broad statement. It will be some time before American roads compare favorably with those of Continental Europe, but the United States is sure ultimately to forge ahead with her usual energy in road building, as in other matters. In Southern California the use of crude oil to harden sandy and dusty roads already has been the cause of immense progress in this direction. In many instances the oil is to be had right beside the highways, and even when applied in a most indifferent manner the results are beneficial.



THE VENTURA MISSION, WHERE "RAMONA" WORSHIPPED

The California motorist's greatest advantage over those of the rest of the country is that he can tour every day in the year, there being no snow, and rain falling only between October and May.

The old Catholic missions of California, strangely enough, bear an interesting relation to motoring. California was first settled by the good padres from Mexico, who founded the farthest outposts of their great church on the peninsula of Lower California, and from that vantage ground progressed gradually northward. The southernmost important mission in California proper was founded at San Diego, twelve miles from the Mexican line, and from that city a chain of missions, with numerous branches, extends five hundred miles northward. Because of the then wild nature of the country, the presence of hostile Indian tribes and not infrequent banditti, the plan of the padres was to locate their missions a day's journey apart. It was found possible to travel on horseback, and even afoot, in a long day, a distance of about forty miles, and this is about the average distance between each pair of the twenty-two missions that now extend from forty miles north of San Francisco to the Mexican line, five hundred miles south. To-day, a hundred and thirty years after the missions were founded, the course followed by the first white settler in California is become the favorite route for traveling by the latest individual who appreciates the fascination of the Western country—the motorist.



A FLOWER-EMBOWERED ADOBE IN SANTA BARBARA

Los Angeles, the metropolis of a midwinter paradise, is a very much up-to-date city of 150,000 people, and boasts of over a thousand motor cars in daily use upon its well-paved streets and avenues. As it is impossible within the space here allotted to describe all of the fifty thousand miles of highway that are possible for the motor car in California, it herein will be attempted only to cover the runs to San Diego and to Santa Barbara, from Los Angeles as a common starting point.

Leaving Los Angeles for San Diego, there are two general routes to choose between—the coast route and the inland route. By the coast route the distance is 142 miles. The inland route calls for 170 miles running by the straightest way, while if Riverside is visited twenty miles more are added, and a detour to take in Pasadena adds an additional ten miles. Neither route, however, calls for following any absolute schedule, there being many parallel roads and a network of cross roads, affording an infinite variety for the motorist in whom the exploring instinct is strongly developed.

Los Angeles is about fifteen miles from the Pacific Ocean, but even by the coast route the ocean is not seen until the old mission town of Capistrano, sixty miles to the south, is reached.

The time of the year makes a difference in the choice of roads for the first thirty miles. In the rainy season many prefer to head at once for the Quaker colony at Whittier, and then traverse the length of La Habra Valley, finally going over the Fullerton Hills to the oil center of that name. If high speed is desired, the broad, straight and thinly-settled Telegraph Road direct to Anaheim is best.

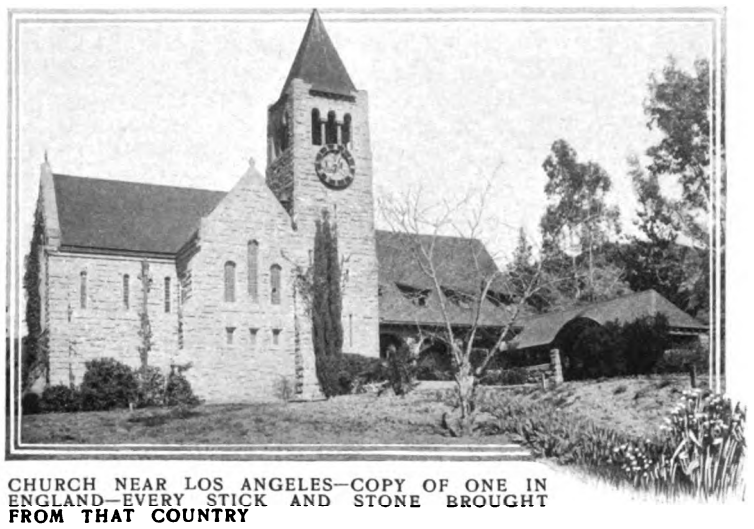
The route specified by the Highway Commission of Los Angeles, California, as the best road between Los Angeles and San Diego, has its start in the oldest street in the city, Seventh Street, now paved with asphalt, which should be followed out to the bridge across the Los Angeles river, which is a quarter of a mile wide and rarely has any water in it. At this point there is a small hill to be climbed to Boyle Heights, and the route then runs south along Boyle Avenue for several miles. Crossing to a parallel road that leads to the now very dead boom town of Manhattan, we are soon on level, oiled roads, skirting a long vista of vegetable gardens, tended by patient Chinese.

After crossing the suburban trolley line to Whittier, the Bell Road is

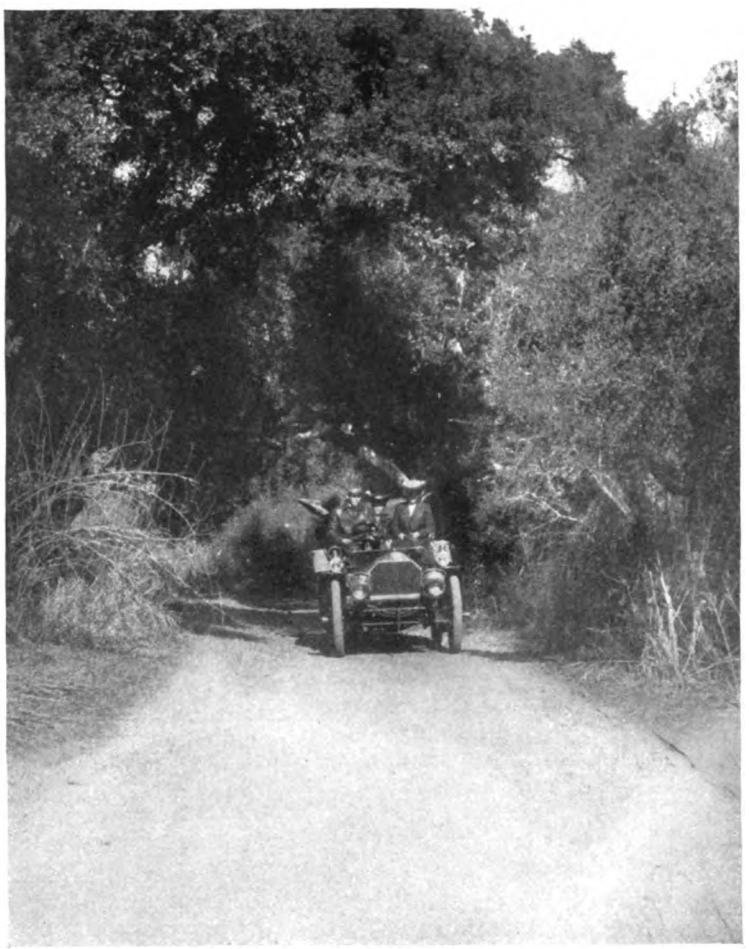
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followed for some miles due east through a well watered country, with a thousand little homes freshly built up in the new suburb of Bell. Soon these evidences of progress are passed, however, and we come to old adobe houses, even the fields in which they are located appearing old and historic. Over the sod our tires now roll the sandal-shod padres of over a century ago plodded afoot, with diminutive donkeys to carry their burdens. An ancient sign, bearing the legend "Nine-Mile House," adjoins a modern wayside inn, called the "Three Points," a name that bears a direct relation to the three roads that here come together. The road to the left connects with the previously mentioned Telegraph Road, while the narrowest of the three roads passes the hundred-year-old home of Governor Gage, of California, a half-mile away.

We take the narrow road, bearing to the southeast, and soon cross the San Gabriel River. Here a glimpse is caught of the Governor's one-story adobe dwelling, with its walls three feet thick. The Governor is, of course, a motorist, although he still preserves his love for California-bred horses. The rest of the way to Downey, which is for all the world like a well-kept New England village, the road runs through a rich farming country. Passing through Downey, farming gives place in importance to the dairying industry, the road being lined with alfalfa fields. At the little town of Norwalk begins a country of vineyards, and the next village is called Artesia, because of the abundance of artesian water, the many wells being marked by reservoirs that dot the plain and mirror back the perpetual sunshine. The road runs straight east mile after mile. To the left a quarter of a mile is Buena Park, where vast quantities of condensed milk are prepared, afterwards to be used in Western mining camps. Finally we turn south again, having avoided the Fullerton Hills and cut around the city of Fullerton, which we can see a mile to the north.



CHURCH NEAR LOS ANGELES—COPY OF ONE IN ENGLAND—EVERY STICK AND STONE BROUGHT FROM THAT COUNTRY



A LOCOMOBILE COMING THROUGH THE WOODS

The roads now are of a sand-papered perfection, and a fast spin brings us to the German colony of Anaheim. This is one of the few towns in which beer is dispensed to motorists and others, most of the smaller towns in Southern California being "dry." Anaheim is thirty miles from Los Angeles.

Eight miles more, through highly cultivated and thickly settled country, and we are in Santa Ana, one of the gems of Southern California—a city of eight thousand, possessing a Carnegie library, a modern courthouse and schools, well-paved streets, and other adjuncts of civilization. This is the last town of size on the way to San Diego. After leaving Tustin, a suburb of Santa Ana, the road runs for many miles through a great barley ranch, a famous Spanish land grant, which is succeeded by a series of cattle ranches and salt marshes, almost unbroken except by the mission settlement about the San Juan Capistrano Mission, and one other oasis in the desert of grazing land, which surrounds the mission at San Luis Rey.



GYPSIES, NEAR LOS ANGELES

There are fair hotel accommodations at San Juan Capistrano, and gasoline and lubricating oils for the car, and lunches and light wines for its occupants are to be had. The railway, like the highroad, here reaches the coast, but the two keep together for only a short distance.

Three miles south of the railway station the road ascends to a vast "mesa," or tableland, which for miles overlooks the sea. The reason for leaving the old road, which kept closer to the shore, is that the many crossings of deep, "box cañons" are thus avoided. After a while the road passes through a small tule swamp and for a distance of two hundred yards the running is on the beach. This short stretch is the worst spot in the whole distance from Los Angeles to San Diego. The sand is soft, white, and yielding, and though a small car will go through it fairly well, with a heavy car strips of canvas or boards must be secured to prevent the wheels from imbedding themselves as a result of their rotation. After surmounting this difficulty we cross the railway and run up the Arroyo de San Onofre. This gulch leads us again on the tableland, and for nearly ten miles we follow the old "Camino Real," with the ocean spread on our right as far as the eye can see.

Leaving the tableland for the last time, we strike off into the foothills, pass through some more cool cañons, and finally coast down a steep, narrow grade into the beautiful valley of the Santa Margarita River. The ford of the river—there is no bridge—looks serious upon first sight, but is really trifling except in the rainy season, because of the shallowness of the water. The grade up the Wire Mountains on the other side is steep, but any good car should climb it with a load, and even the poor ones will take it with all but the driver walking. Once over the hill, the red-tiled roofs of the quaint old mission of San Luis Rey appear. Red roofs, yellow walls, green foliage, a smiling village of happy homes, and a fruitful valley, form a picture that the mind never forgets. This mission, like most of the others, is built a few miles inland and out of view from the sea, so that the swashbuckling and piratical explorers of early days might not too easily find and plunder it. A good steel bridge carries us across the river here and the choice of two routes now presents itself. One leads southwest from the

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mission to Oceanside, on the coast, and then follows 42 miles of coast road, with several bad stretches of sand, to San Diego. The easier route is that inland to Escondido, and south from there over thirty-five miles of good road to San Diego, passing the ruins of the San Diego mission five miles northeast of the city proper. The road from Escondido south is a well-kept highway over most of which a speed of 25 miles an hour can be safely maintained. Two stiff grades, one at Poway Pass, and the other in Murray Cañon, must be climbed, however.



A WHITE STEAMER IN ELYSIAN PARK, LOS ANGELES—400 FEET ABOVE THE CITY

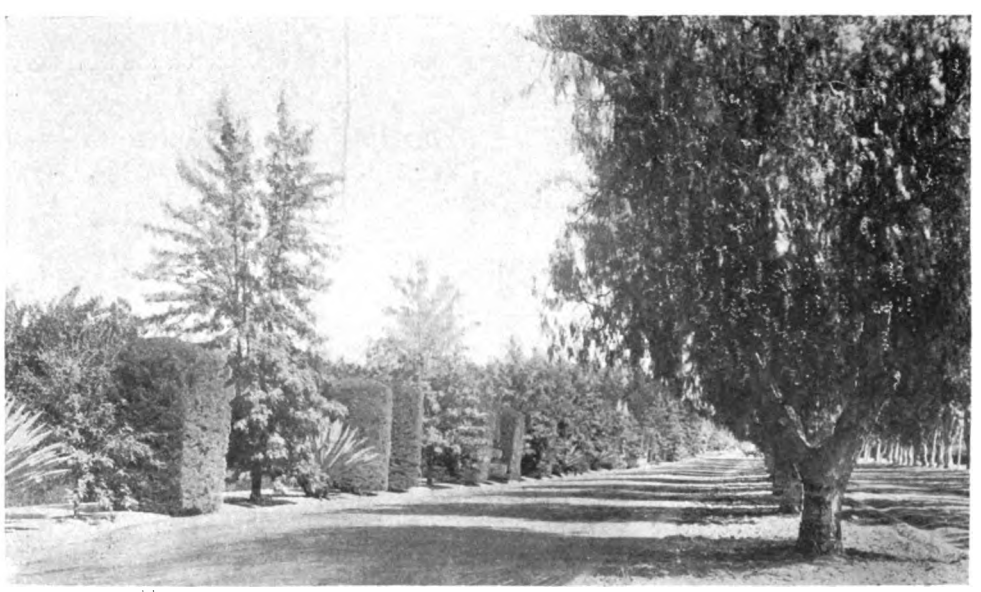
In the vicinity of San Diego are many pleasing drives, leading to La Jolla, Cajon Valley, and the old Mexican town of Tia Juana, just over the border into Mexico and twelve miles south of San Diego.

In coming north from San Diego, it is possible to proceed only by the coast to Escondido. North of Escondido, however, there are three routes through the mountains, all coming back to the main way at Temecula and Lake Elsinore. One goes by way of Valley Center, Keyes Cañon, and Pala; another by way of Moosa Cañon, through Twin Oaks, Bonsall, and Rainbow; and the other by way of the ocean as far as Vista, and thence to Bonsall and up the river valley to Pala. The best scenery is along the first route; the second affords easy grades, but does not pass Pala Mission.

From Escondido over the long grade to Valley Center, there are five miles of continuous mountain climbing that surprise every motorist who tackles them. The grade is not steep, the maximum incline being less than 12 per cent., but it seems never-ending. This fact is largely compensated for by the beautiful panorama of views that reveal themselves on every turn on the way up. When Valley Center is reached, there is down hill for twenty miles, and the last bit of the grade—the "Devil's Slide"—while perfectly safe if the brakes are in order, is sure to give several thrills. The last time I went over it, three brave men registered a vow in my presence never to joke about it again. Our car had hung for an hour and ten minutes on the brink of the steepest bend, with a prospective drop of 500 feet under the outer wheels, and all this in the dead of night—but this is another story.



EUCLID AVENUE, ONTARIO, CALIFORNIA—A POPULAR ROAD FROM VALLEY TO MOUNTAINS



A STREET IN RIVERSIDE—A CITY WHERE FROST IS UNKNOWN

From Los Angeles to Santa Barbara is a pilgrimage that every good motorist should make before he dies, and the sooner he makes it the more reluctant he will be to die. There are three distinct routes from Los Angeles to Ventura, which is thirty miles from Santa Barbara, with no alternative road between.

By all means the preferable route is that by which Los Angeles is left over

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AN INDIAN HUT, ONE HUNDRED YEARS OLD

the new Sunset Boulevard, which runs directly to Cahuenga Valley and Cahuenga Pass. At the end of the dry season, the road for ten miles beyond the pass usually is in poor condition from heavy hauling. Beyond Encino, twenty miles from Los Angeles, twelve miles of the road, to Calabasas, is through chalky hills and is in good condition.

On the way Conejo Pass must be climbed. There are two roads by which this may be done. One is a long, easy grade, passing through the beet-sugar city of Oxnard and there connecting with a good road that runs to Ventura. The second pass road is fully five miles shorter than the other, but the grade here is twelve per cent., though the road is excellent.

The northernmost road from Los Angeles to Ventura goes by way of the Fremont Pass through the San Fernando mountains, and involves climbing a four-mile grade, three-quarters of a mile of which is so steep that only the highest-powered cars can climb it, and even they are likely to have difficulty in securing traction. The grade is thirty per cent. for a quarter of a mile and is declared to be as steep as 55 per cent. in a few places.

The third route to Ventura follows the San Fernando Road to Fernando village, passing the mission of San Fernando Rey, and the rest of the way by a good road to Chatsworth,



VIEW OF SAN DIEGO FROM HOTEL CORONADO

whence a climb must be made over the San Susianna Pass to the Simi Valley. From here it goes through the hills to the Little Simi Valley and on to Camarillo, from where the Santa Clara Valley is reached by way of the new Conejo Pass. Towns where gasoline is to be had between Los Angeles and Ventura are El Rio, Montalvo, Calabasas, Newberry Park, aand Camarillo. Lubricating oil can be had at El Rio. By the northern route, supplies can be had at Fernando, Newhall, Peru, Fillmore, Saticoy, and Santa Paula. The middle route passes through the small villages of Chatsworth, Simi, Moorpark, and Somis.

Ventura is a city of three thousand population, with two good hotels, repair shops, and supply depots, and is famous as the scene of "Ramona."

From Ventura to Santa Barbara, a broad, well-kept avenue is followed for six miles, and then begins the narrow, but very fair road through Casitas Pass. There are many small fords, and numerous bends. Nearly midway of the pass the Los Sauces Creek is crossed and then the West Casitas Summit is ascended, from which the whole country to and beyond Santa Barbara can be seen. At the foot of the grade on this side, Rincon Creek is crossed, and we are in Santa Barbara County. The ford of the creek is very shallow, but a bridge would most undoubtedly be preferable. A few more miles by a fine road brings us Carpinteria. Montecito and Miramar, beautiful suburbs of Santa Barbara, are next reached, and a few minutes after we are within the southern confines of the city itself.

Santa Barbara is a city with a charm never to be forgotten. Its population is about 8,000, and it nestles in a sheltered valley, opening upon the ocean, with mountains over six thousand feet high on the north, and the "mesa," a table-like range of low hills, on the south. There are two splendid hotels here, one of which is excelled by none in the land. This hotel faces directly on the sea, and Santa Barbara's far-famed ocean drive and breakwater, bordered by palms and lit by electricity, passes in front of it. There are several well-conducted garages and repair shops about the town, and touring cars are encountered by the score.



AN OLDSMOBILE ON A FEBRUARY TRIP THROUGH SOUTHERN CALIFORNIA

The Santa Barbara Mission is one of the largest, most beautiful, and best preserved in California, though it is not as old as some others. It is located at the mouth of Mission Cañon, a couple of miles northeast of the city, and from roads that extend into the mountains back of it a magnificent panorama of land and sea is to be had, embracing in one wide vista the Channel Islands—San Miguel, Santa Rosa, Santa Cruz and Anacapa—and the placid waters of the channel between the islands and the shore, in which many of Uncle Sam's most famous warships, including the Monterey, the Olympia, and the Oregon, were given their trial trips. It will not be many years before the motor boat will come into its own upon this marvelous stretch of sea, by which time trips to the wonderfully interesting, fertile, and yet almost uninhabited islands will be something to travel far to enjoy.

North of Santa Barbara, the coast railway to San Francisco was recently completed, and the many towns along its line—Goleta, Elwood, Naples, Gaviota, Concepcion, San Luis Obispo, etc., all can be considered the objective points of an interesting tour, extending even to San Francisco, if desired, and if roads rather strenuous in places are not feared. If this trip is contemplated, however, probably the best route is that by the stage road directly over the mountains to Santa Ynez, on the river of the same name.



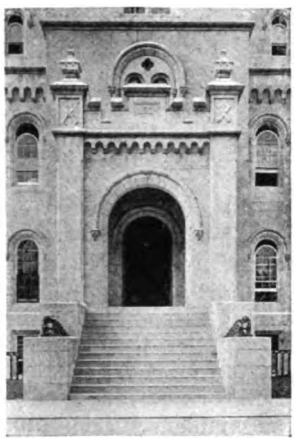
THE DECAYING MISSION OF SAN LUIS REY—45 MILES NORTH OF SAN DIEGO

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RUNS IN WASHINGTON: SOLDIERS' HOME

By C. H. Claudy

There are Bostonians by the thousand who have never seen Bunker Hill Monument near enough to know whether it is made of stone or wood. There are many New Yorkers who know from hearsay only that Wall Street and the Stock Exchange exist, and there are many Washingtonians who wait until a country cousin comes to town to take their first trip to Mt. Vernon. Not only the last resting place of the "Father of His Country," but the present abode of her crippled defenders is sadly neglected by the native, or until recently has been. The motor car has brought more visitors to the Soldiers' Home in a summer than the car lines used to bring in a year; they come to see the buildings and the grounds and remain to get interested in the battles of the Rebellion, fought over daily here in the soldier's paradise by men whose memory is now the biggest part of their lives. And it is a paradise, this Soldiers' Home, maintained by the Government and by the army, from the pay of each soldier of which twelve cents a month is deducted for the support of the five square miles of beautiful grounds, the several living places, the library, the hospital, the stables, theatre, chapel, main building, and all that goes to make up a home more palatial, in surroundings, at least, than is possessed by most multi-millionaires.



THE MAIN ENTRANCE

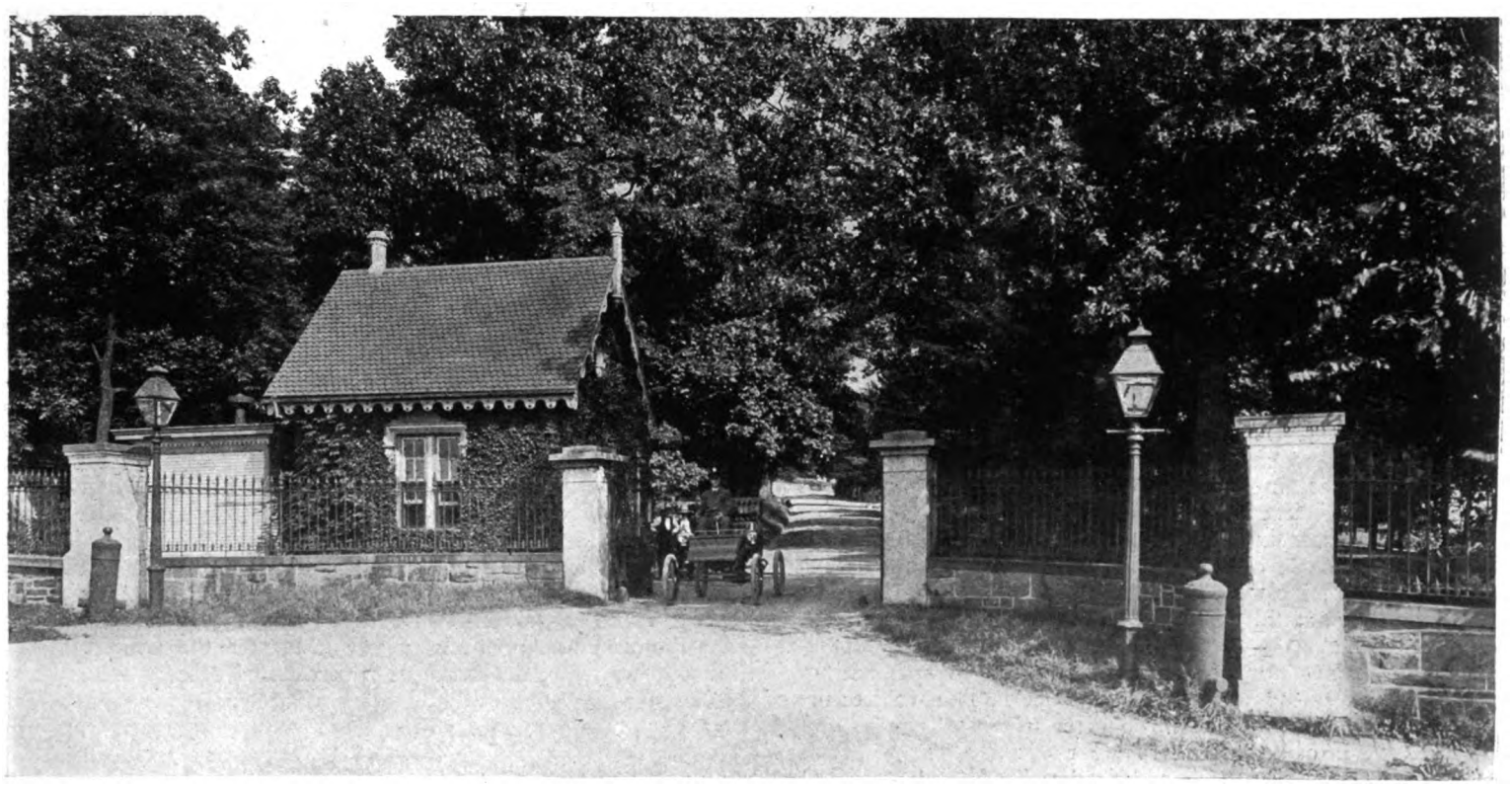
The buildings are substantial enough, and pretty enough, but, with the exception of the main building, more comfortable looking than triumphs of architecture. But the grounds receive all the attention that careful and painstaking landscape gardening can bestow upon them, and as a result there is a series of roads which cannot be surpassed anywhere in the country, lawns the envy of every city dweller, lakes and ponds for swans and fish and tired eyes, and views from every point well worth going miles to see. The motor car can take no credit to itself for this condition of things, as it obtained long before the first of the modern conveyances puffed its way up the hill to the Scott statue and the city view.

But the all-conquering motor cars can find a ready-made pleasure ground prepared for them, by running a short distance out from the city, as the majority of Washington motorists know. The visiting motorist will wish to see other sights first, and the Capitol and the Washington Monument, the White House and the various Government buildings, are, of course, of prime importance. But let Soldiers' Home be the first out-of-the-city trip made. Proceed out any of the numbered streets to the north—Seventh, Eleventh, or Fourteenth by preference—and turn east down Whitney Avenue, which ends at the East gate. Just inside this there is a gallery of signs, which instruct the visitor that he must not pick, pluck, or break; that he can have a cooling drink of water by going south to Mary's Spring; that he must keep on the road, and, lastly, that he must not run his car faster than six miles an hour. This seems a greater hardship than it really is. In the first place, there are many hills; in the second, anyone owning a machine that can go up the hill faster than the very moderate rate required, does so at his pleasure, and as long as the speed is reasonable and not apparently dangerous, no one ever says anything.

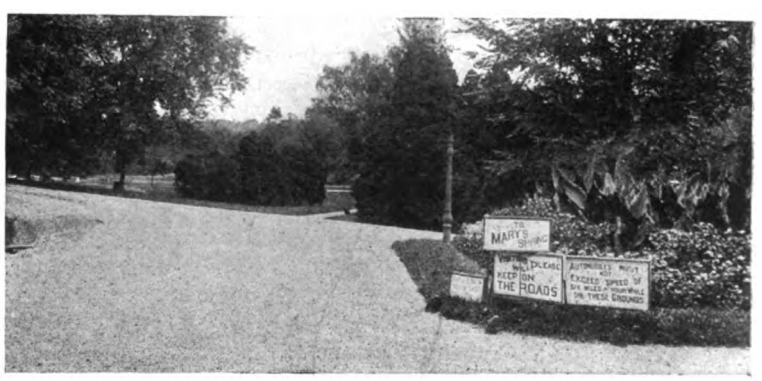


THE HOSPITAL

Taking the road to the left, plainly designated by a sign, "To Home Buildings," the motorist winds his way across a little bridge—from which he can have a pleasant view up and down the lakes—until he strikes one of the main roads of the place, smooth and hard and firm, wide, well kept, constantly swept,

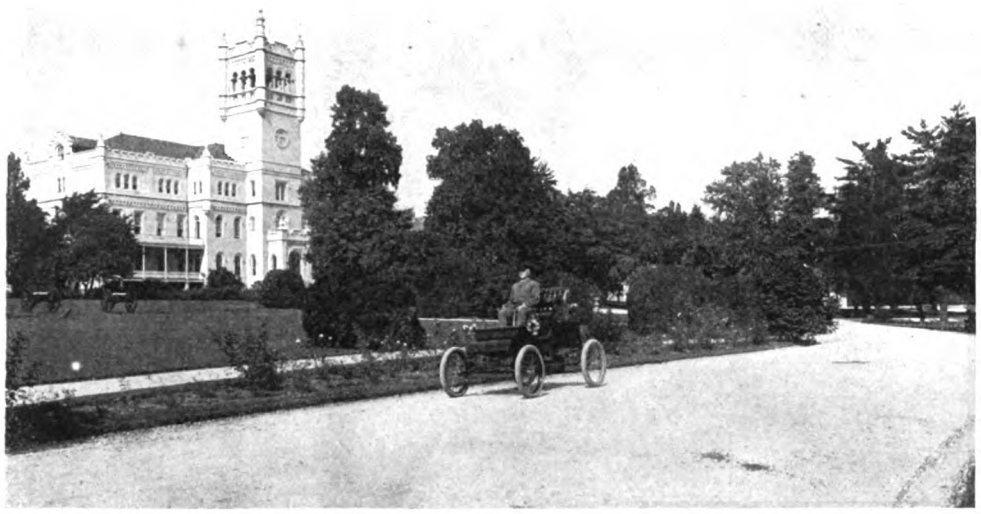


A GOOD ROAD UNDER THE TREES—THE NORTH, OR IVY GATE



SIGNS MORE HONORED IN THE BREACH THAN IN THE OBSERVANCE

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THE MAGNIFICENT ROAD PAST THE MAIN BUILDING

and generally a pleasure to look at and to ride over. This road winds upwards and ever upwards, sometimes with an easy grade, once or twice with a steepness that makes the teuf-teuf come loudly from the exhaust. It reaches its highest point at the Scott statue, wherefrom the visitor can look over the entire city of Washington, see the Capitol, the Library, the Monument, and other points of interest, and if the day be good and the eyesight reinforced with a pair of good glasses, Arlington and the Lee mansion, across the river and several miles away. This view is to the south and west. Turning in the other direction, the Main Building shows its high white tower only a short distance away, and after swinging around a bend or two, and passing a number of pretty houses—residences of those in authority here—the adventurer will find himself rolling along a wide roadbed, to one side of which he can get a good view of the "parade ground," in the centre of which is the staff and the flag, flanked by cannon—silent now—and guarded by shells, long since relieved of their wrath and power, now engaged in peacefully decorating the side of the road. Below a terrace is a tennis court; directly opposite is a pavilion for the band, and seats under trees and little summer houses are everywhere, each with its little circle of soldiers, mostly old men, talking over the war as it should have been fought, fighting Russia and Japan as they should be "fit," and directing the Government as it ought to be run.



THE HIGHEST POINT ON THE GROUNDS—THE SCOTT STATUE

To the front door of the main building—worth seeing, if not of entering—is but a turn of the wheels. The architecture of the entrance is a much admired piece of work. An inscription just inside read: "A grateful country to her defenders." There is much else to be seen inside, but as the car cannot enter and most things are more pleasurable if not known too well beforehand, there will be no further mention made of them here.

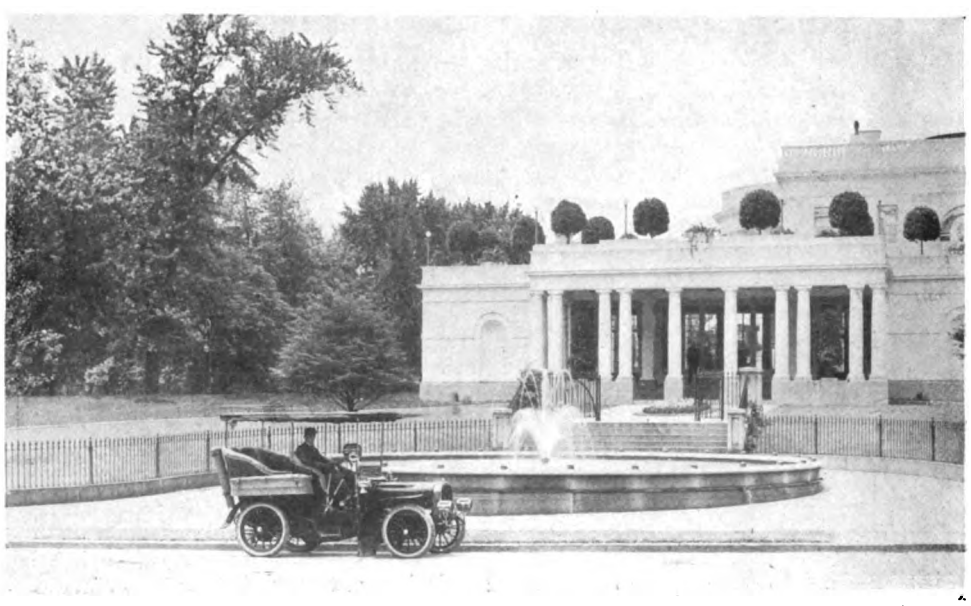
The buildings duly seen and admired, the car can be run for some time through the grounds without going over the same road twice. There are any quantity of pretty vistas, and, if a lunch has been brought, there is no better spot than near "Mary's Spring"—mentioned before—where there is enough cool water to feed the party and fill the tank.

There are entrances and exits to the park on all four sides, though the Southern, or First Street entrance, recently has been somewhat interfered with by the new water works that are building to supply Washington with water, less like mud and more like a drinkable fluid. The long coast down First Street, of over a mile of steep straight asphalt hill, is still available, however, and the speed crank will find this an excellent test of his machine if he tries to climb it in a hurry.

The entrance on the north, through what is called the ivy gate, is the most picturesque of all, and it is this that is most convenient to the Seventh Street pike, along which to the north are Tacoma Park, Silver Springs, Forest Glen, and, farther, Harper's Ferry. To the south is Washington, but as the street is cobblestones part of the way, a detour out to Eleventh, by way of Whitney Avenue, is advisable.

Visitors should not neglect the cemeteries to the east of Soldiers' Home, particularly the soldiers' burial ground, and should not forget to look at these graves from a corner of the place, as a most peculiar effect of perspective is obtained by the regular arrangement of the tiny headstones which mark the last resting place of so many of our country's defenders. It should not be forgotten that the Soldiers' Home is a most excellent place for a motor-car picnic—crowds are a rarity and disorder unknown. The various springs and pumps furnish water for man and machine, and within limits the grass is free to all, the signs of "keep on the road" to the contrary notwithstanding.

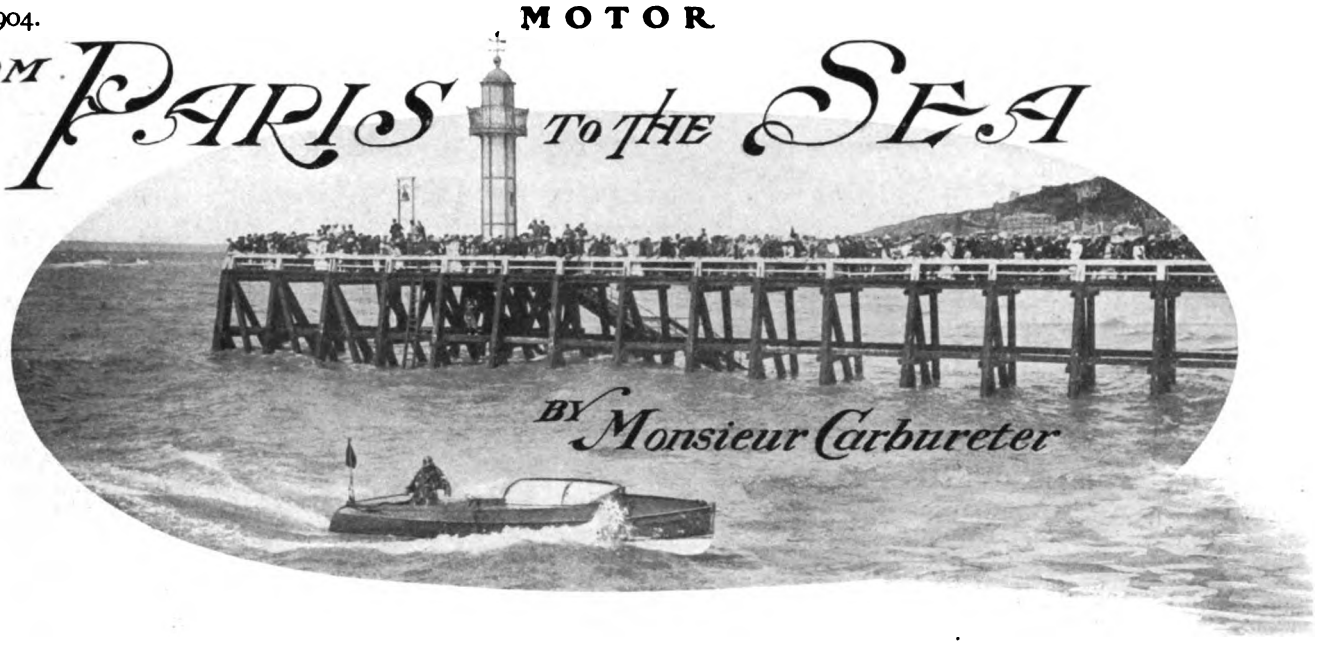
Besides the grounds of the Soldiers' Home as the objective point of a motor-car jaunt, there are in the neighborhood many other points of interest by which an itinerary may be varied to suit individual preferences. In a northwesterly direction is the National Park, a beautiful expanse of over three square miles in area, in which art and nature have worked together to produce an harmonious ensemble of surpassing loveliness. Due west from the Soldiers' Home is the Zoological Park, which will well repay a visit. Still farther to the west—three miles from the Soldiers' Home—is the Naval Observatory, long famous as the site of the largest refracting telescope in the world, until the Poltava, Lick, and Yerkes instruments robbed it of this preeminence. From the extreme north of the home grounds, out by way of the Ivy Gate, leads a road that, after a few detours to the right, leads straight on to Baltimore, an easy half-day's run over some fifty miles of very fair road. Or a turn directly east may be made, and two or three hours' running will bring the motorist to Annapolis, where is located the United States Naval Academy, the home of future naval officers—thirty-five miles away.



A GLIMPSE OF THE WHITE HOUSE

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FROM PARIS TO THE SEA



PARIS, Sept. 15.—Started on a bright Sunday morning from Courbevoie on the left bank of the Seine, the second annual motor boat race, Paris-to-the-Sea, had an auspicious beginning with the usual appurtenances: a band, national colors, a grandstand, a big crowd, and government officials forming the proper ensemble. The contest was held under the management of the *Velo* and the *Yachting Gazette*. M. Pelletan, the Minister of Marine, made his appearance on a French torpedo boat, thus giving an official and a national character to the event. (Has the American Secretary of the Navy yet attended any of the auto-boat races in his own country?)

Of course, the banks of the Seine were heavily fringed with spectators, and the boats got under way to the cheering of at least 50,000 or more. Sunday is the day for the start of a contest like the one under consideration, because it's the "continental" day. Events of this kind in the United States are not run on a Sunday because "it's wrong," and because the public, deprived of everything in the way of amusement except the saloons, therefore cannot lend its presence.

The finish of the race came on a Friday, the objective point being Trouville, the Newport of France.

In the general classification, the *Mercedes IV*, owned and driven by M. Védrine, the manufacturer of automobile body work, an 80-horsepower boat with four cylinders, was first. The time of the *Mercedes IV* over a course of 328 kilometres (204 miles) was 7 h. 34 min. 16 sec.

The *Hotchkiss*, owned and driven by Henry Fournier, was second in 8 h. 58 min. 56 sec. The *Trèfle-à-Quatre* (Richard Brasier) was third. The above-mentioned boats are of the category, 8 to 12 metres, the *Mercedes IV* and the *Hotchkiss* being 12 metres in length.

In the second category of racers (less than 8 metres) the *Rapée III*, with Panhard-Levassor motor, was first in 9 h. 38 min. 5 sec., and the *Louloute*, Herald motor, was second in 13 h. 52 min. 4 sec.

The *Titan* was third, and the *Princesse Elizabeth* (Belgian) third.

The cruiser categories were four in number. The first was less than 6½ metres in length, and the winner was the *Titan IV*, with Delahaye motor, in 20 h. 8 sec., with the *Titan V* second in 20 h. 12 min. 34 sec., the *Marguerite* (Mutel motor) third, and the *Arion III* (Filtz motor) fourth.

The victor in the second category (6½ to 8 metres) was the *Arion III* in 14 h. 41 min. 28 sec., with the *Moénie* (Herald motor) second, and the *Mercedes III* third.

In the third category (8 to 12 metres) the *Vas-Y* and the *Titan I* (Herald motors) were first and second, with the *Suzy* (Dietrich motor) third.



PILOT OF THE USONA II



THE VAS-Y

In the fourth category (12 to 18 metres) the *Marcotte* (Delahaye motor) was first.

There were two categories of the special class. In that of the "under 8-horsepower," the *Heldé* (Demerliac-Seguim motor) was first. There were six in the 16-to-21-horsepower class, and the *Usona II*, carrying American colors, owned by Fournier & Knopf, with a Lozier motor, was first in 17 h. 59 min. 42 sec. Her closest competitor was the *Etoile* (Boyer motor), in 20 h. 2 min. 45 sec.

The stages of the race, six in number, were: Paris to Mantes, 90 kilometres; Mantes to Elbeuf, 109 kilometres, Elbeuf to Rouen, 22 kilometres; Rouen to Caudebec, 67 kilometres; Caudebec to Havre, 28 kilometres, and Havre to Trouville, 12 kilometres.

The *Mercedes IV* and the *Hotchkiss* had a duel on the fifth day of the race, Caudebec to Havre, and the *Hotchkiss* won her first contest of the series. The *Mercedes IV*, however, had such a comfortable margin that she couldn't lose in the final classification. The work of the *Mercedes IV* was admirable, and the *Hotchkiss*, admittedly a great boat, on account of her newness, did not get into the "swing" of the race until near the end.

At Rouen there was a mile race (marine mile), which the *Mercedes IV* won in 3:05 3/5, with the *Hotchkiss* second in 3:11 2/5, the *Rapée* third, and the *Louloute* fourth.

The flying kilometre race was won by the *Rapée* in 1:41, with the *Louloute* second, the *Mercedes IV* and the *Hotchkiss* not competing.

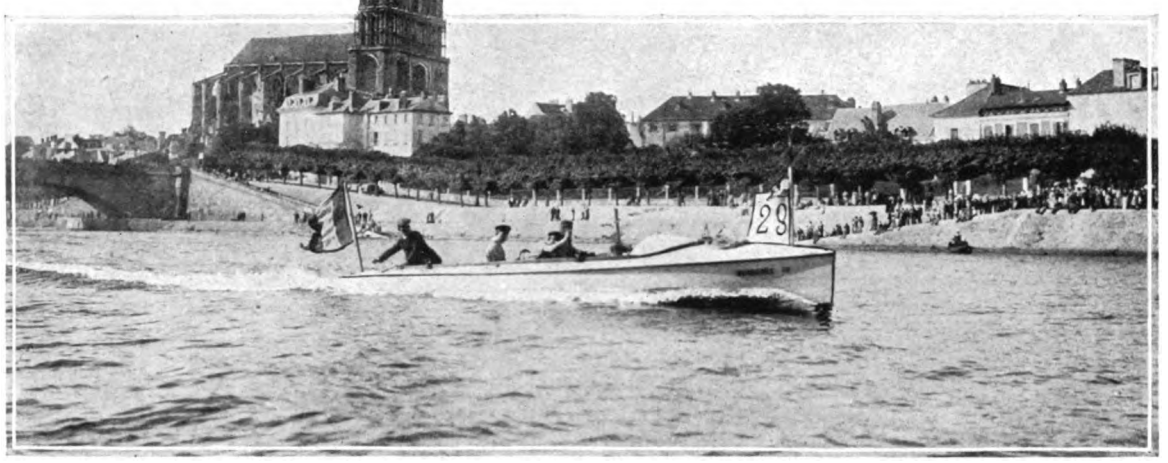
At Trouville there was a contest at three marine miles for the Gaston Menier Cup, which the Hotchkiss, *Toujours*, steered by Fournier, won in 8:27 2/5, with the *Trèfle-à-Quatre* second in 9:40 3/5, and the *Napier II* third in 10:11 2/5. The speed of the *Hotchkiss* was 22½ knots an hour.

Since the Paris-to-the-Sea event there has been a vast amount of activity in motor boating, embracing challenges of all kinds, and finally came the offer of M. Charley to give a prize of $10,000 for the first motor-boat to cross the Atlantic.

M. Fournier with his *Hotchkiss* had won the big race at Lucerne, distance 114 kilometres, beating the *Mercedes*, *Trèfle-à-Quatre*, and *the Rapée*.

In response to the Charley proposition came prompt answers that the *Hotchkiss*, the *Trèfle-à-Quatre*, and probably the *Napier*, would try for the 50,000 francs—it sounds more when you say the amount in French money. Of course, there is more or less talk as to whether the fuel problem can be met in such a long journey, and various ideas have been put forth as to the manner of meeting the emergency.

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THE MERCEDES III ARRIVING AT MANTES

The automobile show this year will be held from December 9 to 25, in the Grand Palais, as usual, but with an "overflow" in the buildings of the Paris Conservatories, in the Cours-la-Reine, on the bank of the Seine. There the crowds will "flock" as in previous years, and there the "man-in-a-hurry" will order his motor car for delivery in March and will get it in August. Among the more than two-score manufacturers of motor cars in France there are about eight or ten that make money. If the others knew what "business enterprise" meant they, too, would would be making money.

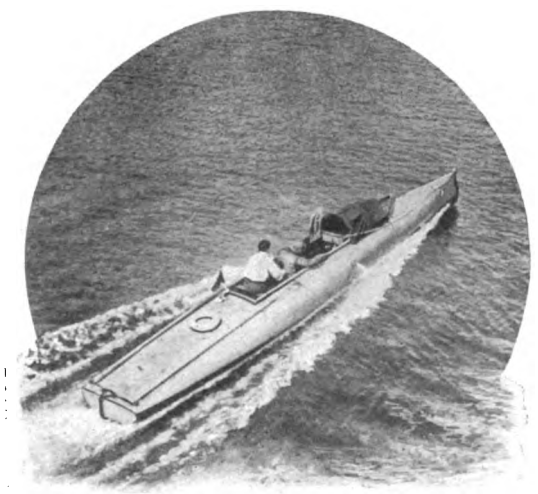
H. Kendall Thaw, of Pittsburg, has had an experience with the police justices in Switzerland, among whom, it seems, there are not a few Cornells. The report says that Mr. Thaw, "while waiting," was obliged to gaze on four walls, also that he was not the culprit, but another "scorcher." The police, however, had to nab somebody, and Mr. Thaw was right in line. The watchword in Europe for automobilists is "keep out of Switzerland." The land of cheese, pretty maidens (in guide books and fiction), landlords and bills is well worthy of careful avoidance. The "hold-ups" by the police and the many petty annoyances are sufficient to have given cause for a general warning against the country.

Judge Gary, of New York, who has been seeing parts of Europe from a motor car, says he is in favor of "rational" speed, but admits that he likes the sensation of knowing that there's a powerful motor under him and that it is "there" in case great speed is needed. While he was in Paris, Judge Gary had a ride with Mr. Yerkes on the latter's Léon Bollée. Cortlandt Bishop, of New York, has been touring in various sections of France, including the Aix-les-Bains district, with a Panhard. Two other Americans who have been flying about Europe this summer are G A. (Champagne) Kessler, with a Hotchkiss, and E. G. Jones, with a Mercedes.

The careless brakeman who left the crossing gates open at Roissy on May 1, causing the death of six members of a motor party as the result of being struck by an express train, has beeen "sentenced" to one year in prison and to pay a fine of 300 francs, but with a suspension of both penalties according to the law pertaining to "first offence." Therefore, unless he commits another criminal act, he will never be punished for his culpable negligence.

Motor-boat freaks are not confined to France and America by any means, and now that our English cousins have caught the fever they are making up for lost time, and their rivers and harbors fairly bustle with all sorts of motor marine junk. In England, as in France and America, the craze for speed is responsible for overpowered hulls and matchwood construction, and the end is not yet. Two of the most remarkable boats yet ordered will soon see the light of day, and, if power counts for anything, old Father Time should be shaking in his boots. One of these boats, called the *"X,"* is a twin-screw boat of 300 horsepower, built for Lord Howard De Walden, while the other is a Craig-Dorwald 12-cylinder boat of 150 horsepower.

The De Walden boat, which was built for the Harmsworth Cup race but was not ready in time, discloses perhaps the most sensational developments in the way of hull design and applied power that have yet been dreamed of, still less seen. Her hull was built by Simpson & Strickland from designs of Hans Knudson. Nickel steel is used throughout, but the strengthening, instead of being mainly composed of frames and longitudinal stringers, is mostly to be found in the long T-sectioned keelson which extends practically from stem to stern, narrowing forward and flattening aft in accordance with the deep wave-like curve seen in the steer or lateral view of the underbody. The entrance is narrow and of considerable draught to a point between the forward and middle third, where the floor begins to lift, spread, and flatten as the body spreads aft to the point of the greatest beam, situated a few feet forward of her torpedo-shaped stern. As the body spreads, the perpendicular sides unite with the rapidly-flattening floor in hard bilges.



THE TREFLE-A-QUATRE

There is a tunnel aft in which come the twin propellers of the driving engines and the auxiliary propeller used in running astern, which latter is driven by an American Standard engine of 8-horsepower. This engine serves not only for reversing but also to drive the powerful rotary pump for the water circulation of the main engine, as well as to start the main engines, by means of a countershaft to both main crankshafts. In this way the difficulty and danger of starting high-powered internal-combustion motors is entirely eliminated.

The long girder keelson not only takes the longitudinal stresses—which are severe, considering that a speed of 30 knots is looked for—but serves as a uniting bed plate for both six-



THE MARGUERITE AT ROUEN A BOAT WHICH DISAPPOINTED

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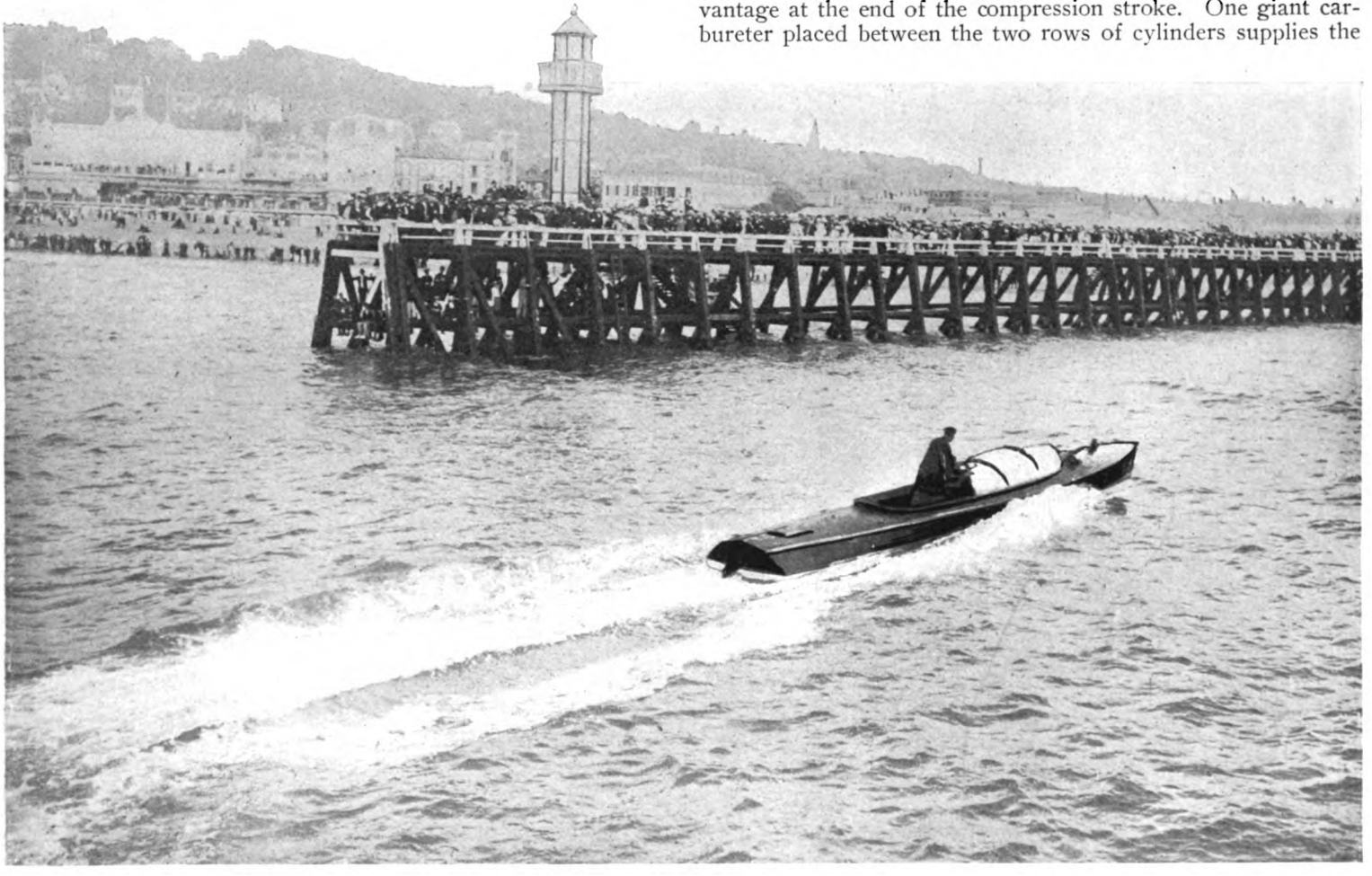
FOURNIER AND LE BLON



IN THE LOCKS: USONA II AND SUZY

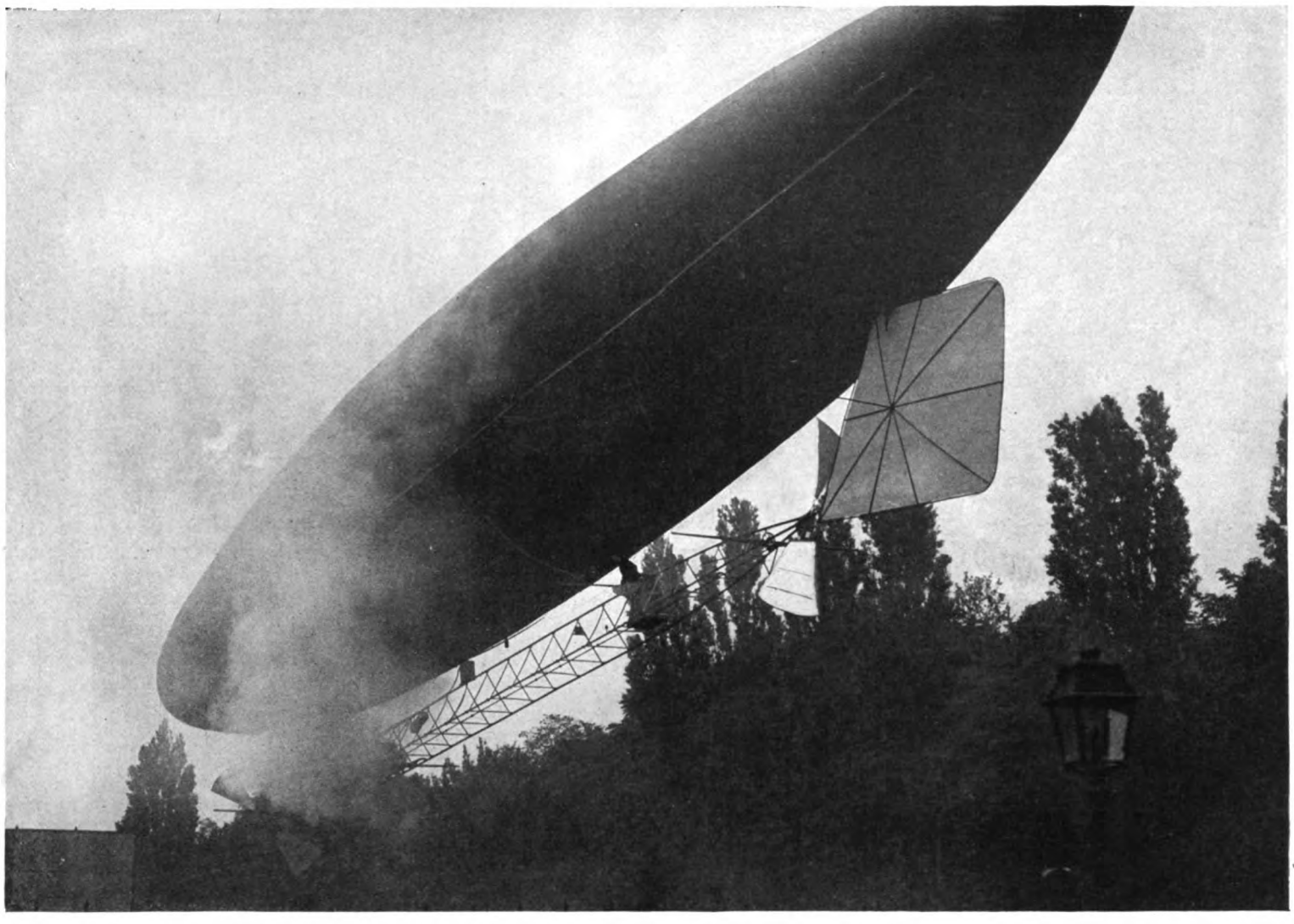
cylindered engines. Notwithstanding that the hull is comparatively narrow and deep at this point, this union on a central bed-plate brings them so close together that not only is it possible to walk right around the pair, but there is plenty of room for the propellers to work without unduly increasing the width of the tunnel. The tunnel over the propellers can be opened from above by a trap door so that the propellers, of which there are three sets, can be changed in less than half an hour. The two six-cylindered engines, each of which gives 150 horsepower at 900 revolutions, and can be accelerated up to 1,200 revolutions a minute, were built by J. E. Hutton & Co. Throttling the mixture is one of the systems of control employed, but both engines are governed mainly by ignition. The ignition system of the main engines, as well as that of the auxiliary Standard motor, are synchronized by a single governor of strong and simple design. The Standard motor was specially chosen by Mr. Knudson on account of its extreme compactness as well as reliability. Its propeller is one of the reversible-bladed type, and, of course, is set on feather when the main engines are at work. Take it all in all the "*X*" is a truly remarkable boat and her racing career will be watched with interest.

The Craig-Dorwald 12-cylindered boat, which was built by the Putney Motor Company, is only 150 horsepower, and her cylinders are cast in pairs and placed diagonally or V-shaped on the crank chamber, half of them making an angle of 90 degrees with the other half, and there being two rows of three pairs each. The motor is 4 ft. 3 in. long, 2 feet high, and 2 ft. 8 in. broad. Each pair of cylinders is cast in one piece with no joints, and large water spaces are provided around each valve. The crank chamber is of aluminum with three large inspection covers on top and at one end. By loosening three nuts the camshaft can be lifted out. This camshaft, which is of hollow nickel steel, only weighs 93 pounds. The connecting rods also are hollow and are provided with an arrangement for pumping the lubricating oil up to the wrist pin. The pistons are machined inside and out, and are perfectly balanced. Each has four rings with special locking devices and an arrangement to prevent the ring from working around the piston. The center of the wrist pin is near the top of the piston, preventing side thrust on the cylinder walls and enabling a short piston and a long connecting rod to be used. The wrist pins are of very large diameter. Both wrist pins and lugs are fitted inside of the piston and therefore never can score the cylinders. Besides this advantage, because of the steel lugs being separate from the pistons the latter are not distorted by heat, as is invariably the case when the lugs are cast solid with the walls of the pistons. The crankshaft is also set in advance of the axis of each cylinder. This arrangement reduces shock and lessens vibration by giving a perfectly direct thrust on the driving stroke, and, therefore, more power, besides a mechanical advantage at the end of the compression stroke. One giant carbureter placed between the two rows of cylinders supplies the



M. FOURNIER ARRIVING AT TROUVILLE, THE HOTCHKISS WINNING THE GASTON MENIER CUP

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THE LATEST CREATION OF M. SANTOS-DUMONT, KNOWN AS No. 7, WHICH DIDN'T FLY AT ST. LOUIS

engine with petrol vapor while the engine is self-starting and the exhaust wonderfully compact.

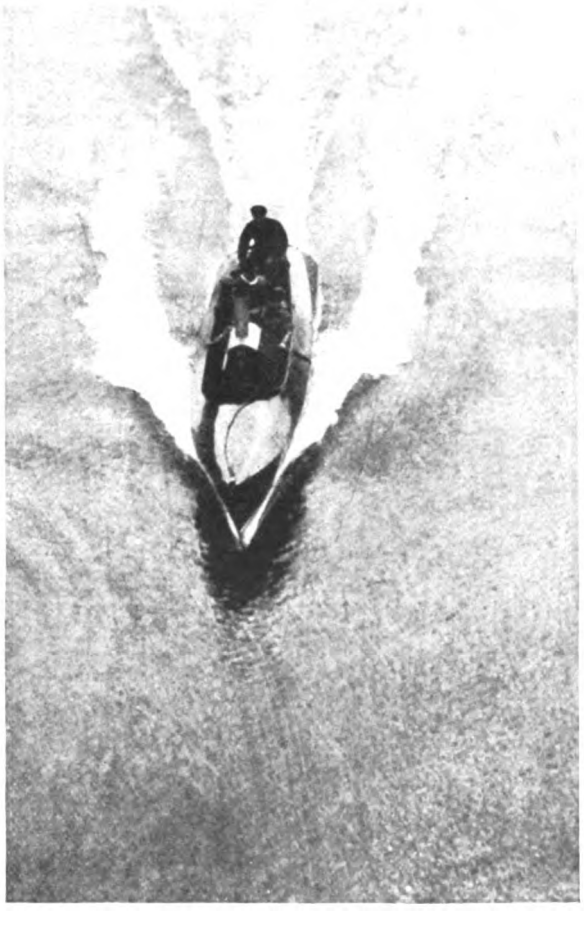
The latest airship of M. Santos-Dumont is his No. 7, the famous aeronaut having made a number of successful trials with it around the Bois de Boulogne in Paris. The motor is a four-cylinder combination, of 60-horsepower, built by Charron, Girardot & Voigt. The motor will develop 1,500 revolutions a minute at full speed. The escape valves and pipes are located at the side, instead of underneath, as has been the case heretofore. Although this arrangement brings the contact a little nearer the balloon, and thus apparently increases the danger of an explosion, the object seems to be to obtain a more direct escape, and therefore a more "open" action for the motor than is obtained by the other method.

An English Prediction

Commenting upon the future of the motor boat, Frederick Strickland writes as follows in the *Car Magazine*:

We are only at the beginning of the possibilities of the motor-boat. Not only is it likely that the motor will very soon take the place of the steam engine for small powers, but it will also be used in many places where steam is at present not employed. In the States they are already far ahead of us in this matter, and one firm alone claims to have built over six thousand motors up to nearly two hundred horsepower for marine work, both pleasure and commercial. There are hundreds of places where a small cheap motor can be used where neither space nor money could be afforded for steam machinery. I believe it will not be long before both sailing and rowing will be too slow for a man to afford the time to go in for them. In fact, the motor trade on sea and river will be nearly as big a one as on the road. For this reason it is evident that the trade will very soon be done by large firms making in considerable quantities, and only turning out one style of work. No doubt, for different purposes the finish and style of work will be very different, as is the case with steam engines, where one firm builds a good strong job not very light, but very reliable, another light high-speed work, etc., each making a specialty of their particular line, and doing that better and cheaper than those who try to do several at once. Small firms will not be able to compete necessarily, as they will not be able to make in sufficient quantities to supply cheaply. For small sizes there seems no reason why most of the work should not be done by the same firm as make the motors for the cars—up to motors with, say, 5-in. cylinders. In fact, there is no reason why the same engine, complete, should not be used, but above this it appears to me that the whole design of the crank case should be different. In a car it is usual to fix the top half of the crank case to the car, but in a launch on the other hand, the motor should be arranged much more like a marine engine, and so arranged that the whole of the bearings can be got at without disturbing the bottom of the crank case in the boat.

It is not at all clear yet what the limits of size for the ordinary type motor are, but there seems no reason why they should not be made very much bigger than they are at present. Above a certain limit, petrol would be too expensive a fuel, and one of the cheaper oils would have to be used. Myself, I believe that it will not be very long before we have internal combustion motors at sea up to several thousand horsepower.



MOTORING ON THE SEINE

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IN THE WOLVERINE STATE

By Robert Bruce

The metropolis of Michigan not only makes a greater number of motor cars than any other city in the world, but is central to one of the finest touring sections in the United States. Within the limits of this famed "City of the Straits" are many miles of asphalt, macadam, and brick pavement, several wide and well-kept boulevards, and numerous parks, with exquisite Belle Isle at its very door. The district which includes all these things has also hundreds of miles of fair-to-good country roads, which afford ample opportunity for the pleasures of middle-distance motoring.

In Detroit the motor car seems to be as plentiful now as the bicycle was ten years ago, the little runabouts naturally in the lead, but a considerable number also of the big touring cars.

What can be more pleasant to a resident or visitor than to gather a congenial crowd and make a quick run over good streets and roads to Belle Isle, spend an hour or so following the smooth gravel roads along the little lakes, through the woodlands, over the rustic and stone bridges, and finally bringing up at the Casino veranda, to watch for awhile the moving panorama which meets the eye from every point? Looking over toward the city after nightfall one sees the numerous lights, the dark river, the long bridge, with boats passing to and fro underneath, while the other way is the Canadian border, with its picturesque, unbroken waterfront. All this, together with the "teuf-teuf-teuf" of passing motors—on land and water—the hum of conversation and the warning note of motor horns, makes it difficult to believe that this is not a far-off fancy but an almost nightly scene.

But this little trip to Belle Isle, though best known, is only one of the many interesting and inviting localities. Mt. Clemens, Wayne, Pontiac, and Brighton, with their lovely lakes, and shady Trenton, while farther, are almost equally accessible, though many, both residents and visitors, are content with short trips to Grosse Point, Fort Wayne, or perhaps a circuit of the boulevard system. Each of the many avenues of the city seems to begin some attractive and inviting excursion. The old Chicago Road, now Michigan avenue, is frequently traveled to Ypsilanti, Ann Arbor, Jackson, and westward. Another fair road is that to Pontiac, starting from out Woodward avenue. All these points are fast becoming the summer homes of very many Detroit people, and motoring is the popular and accepted way to reach them.

Of all the present runs out of Detroit, none is more deservedly popular than the one to Mt. Clemens, the famous health and pleasure resort. This trip the writer had the pleasure of taking one day in early summer of the present year. In the party were also F. R. Hopkins, a newspaper man from Western New York; Dr. H. S. Lake, of Wilkinsburg, Pa., and Thomas E. Smith, of Detroit. Our start was made in the forenoon of an ideal day, from Woodward avenue in the upper part of the city where it is crossed by the boulevard three miles from the City Hall.



IN CLEANLY MT. CLEMENS, WHERE CADILLACS ARE NUMEROUS

This "boulevard," by the way, is not only the just pride of Detroit, but in its conception, method of location, and its use by motorists, carriage owners and cyclists, it is undoubtedly unique. It follows in a general way the outline of the city limits, and, forming almost a complete circuit of the city from and back to the river front, makes connection with all the main thoroughfares and a great many of the lesser streets and avenues of Detroit. From whichever way one drives into the city, one comes sooner or later upon this fine roadway, and happy is the returning pilgrim who can use it for the rest of the way to his destination. To the stranger it looks more like a system of connected boulevards, somewhat on the Chicago or Boston idea, but in Detroit it is called simply "The Boulevard."

Journeying toward Mt. Clemens from downtown one has the choice of going out by Gratiot avenue, all the way and absolutely direct, or of taking Woodward avenue to the boulevard, and keeping this until it intersects—as inevitably it must—with Gratiot avenue. The latter plan is usually preferred for it takes very little extra time and is an auspicious beginning for the trip, giving the first-time visitor an excellent idea of the best portion of the city. In doing so one will pass the railroad tracks used jointly by the Grand Trunk and Lake Shore railroads, and, after making several

(SEE PAGE 58.)



BLACK RIVER IN THE SPRING AS SEEN FROM A PORT HURON BRIDGE

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FASCINATING MOTOR FASHIONS

By Grace Margaret Gould

Hands once held up in dismay are now clasped in delight. It is the new, fascinating fashions for the motor girl that have worked this agreeable change. When the motor car first glided over the rose-tinted path of high society's favor, many fair devotees groaned in spirit over the sacrifices in dress which participation in the sport seemed to demand.

But the American woman can never be separated from charm in dress. Whatever she does must be done becomingly. Such difficulties as the glare of the sun, the oil of machinery, the dust of the road, and the biting of the cold wind have yielded to feminine cleverness; and now the smart girl of the day is at her smartest as she speeds the horseless car.

What, then, are some of the costumes through which the fascinating autumn girl becomes the motor girl without loss of fascination? Well, to begin with, there are her leather coats—coats which in no way whatever resemble the first leather garments designed for motoring. A leather coat which would make any motor-loving girl look smart and attractive is a three-quarter length box garment of soft black Danish kid. The seams are covered with stitched straps of the kid piped with bright scarlet kid. The sleeves are loose and flaring toward the wrist, but just above the cuffs there is a casing through which silk cords are passed, so that when riding on windy days the sleeves may be drawn tight at the wrist. The model is double-breasted, fastening with big dull silver buttons. At the back there is a cape hood made of the soft Danish kid and lined with a gay plaid silk in which scarlet is the predominating color. This same plaid silk is used to line the entire garment. If the weather requires it, the hood may be pulled up over whatever hat or cap is worn, thus effectually protecting the head from cold and wind.



THE NEW MUSHROOM HAT WITH CURTAIN

There are also smart looking leather coats in Norfolk design, as well as double-breasted models which are made of Danish kid in a varied assortment of attractive shades and trimmed with stitched bands in another tint of the same color. These coats are often made with instep length skirts to match, and in their cut and finish have all the chic and charm of an imported cloth or velvet tailored costume.

But, of course, the modern belle who looks upon her motor as her grandmother did upon her carriage, is not satisfied with one motor coat. She must have many, to feel her wardrobe complete. A long cloth coat or two are quite necessary to give variety to her motor wardrobe. Either covert cloth, Kersey, or cheviot is used for these garments, which are made to entirely cover the frock beneath. Large fancy buttons and a big fur collar are used for the ornamentation. The collar may be worn down or up. Marten, beaver, astrachan, are all furs much used for these big collars. Russian pony fur is also in demand, but perhaps the most novel trimming of all, right now, for a cloth or kid coat, is baby calf. A long, loose-fitting tan color covert coat is given a special touch of smartness and distinction by having deep gauntlet cuffs and a wide collar of the beautiful skin of a little calf, brown in color, with streaks, here and there, of creamy white. To wear with this coat is provided a cap of the baby calf skin, having a visor of shiny brown leather. Art nouveau buttons in green and dull gold trim the coat down the front in two rows.

The silk coats, too, even for cool fall days, are high in favor with the fastidious motor girl. There is no doubt that they are the most graceful garments which she can wear. The newest are of silk rubber, having all the gloss and sheen of satin.

A fetching silk rubber model of Revillon Freres is in changeable brown silk with very odd, bag-shaped sleeves, with close-fitting wind sleeves under the loose, baggy portions. Straps and tabs of the silk fastening with beautiful smoked pearl buttons are used as the trimming. This coat is also made in red silk rubber, trimmed with black tabs and bands stitched in red and fastening with black kid-covered buttons.

Under the silk rubber coat, at this season of the year, a waistcoat is worn, which is sometimes of worsted, and sometimes of suede. The (SEE PAGE 78)

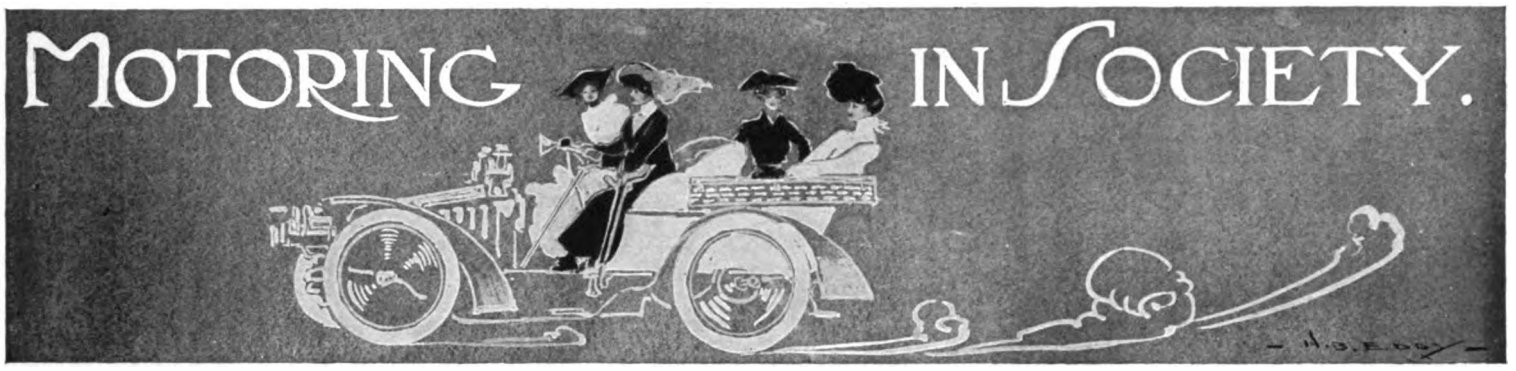


COVERT CLOTH COAT WITH DEEP COLLAR



CHANGEABLE BROWN SILK RUBBER COAT

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Motors are once more flying up and down Fifth avenue, from which they have in a measure been absent during the summer. They are bringing fashionable women into town for a few hours' shopping and luncheon at one or another of the leading restaurants, or else are carrying men from their places of business and from their clubs out to their country houses in the vicinity of the city. For the suburban season is now at its height, and nearly every country seat is open and the scene of much hospitality, as well as of a continuous round of gayety. Mr. and Mrs. Mackay are at their beautiful place at Roslyn, L. I., the George Goulds are at Georgian Court at Lakewood, N. J., the Hamilton McK. Twomblys at Florham, N. J., the Ogden Mills at Staatsburg on the Hudson, the Stuyvesant Fishes at Garrisons, the Whitelaw Reids at Ophir Hall, the Iselins and the De Lancey Kanes on the shores of the Sound, near New Rochelle, and the E. H. Harrimans at Arden. These are but a very few of the large number of people prominent in New York society who are spending the autumn, the most delightful time of the year, at their country seats around New York, and who are enabled to linger there until near Christmas and to keep their houses full of guests by means of the motor, thanks to which they can run into town whenever it suits their fancy and have become independent of the railroads, of time tables, and of the inevitable arrangements in connection with the use of the horses. There is nothing more delightful or invigorating after a tiring day in the city than a fast spin in a motor toward dusk along the country roads and lanes with the knowledge that the journey will end either at one's own country place or at that of some friend, away from the noise of the metropolis and likewise free from many of those restrictions incidental to city life. For hospitality in the country is of a much broader, more liberal and consequently old-fashioned and generous character than in town.

* * *

With regard to the George Goulds, the Twomblys, the Townsend Burdens, and indeed all those who have been abroad during the summer, they have brought back the most enthusiastic accounts of motoring trips through England, and above all on the Continent. Mr. and Mrs. George Gould in particular have a 4,000 mile tour to their record through England, France, Austria, and Hungary in a Mercedes machine without a single mishap of any kind; and George Gould boasts that although he ran the machine himself and dispensed with the services of a chauffeur, it did not break down once, and he did not run over even a chicken. Others have had more exciting experiences, and the young Goelets for instance, whose motor had frightened a team of horses near Linz in Austria, only escaped very rough usage on the part of the infuriated peasantry by Robert drawing his revolver and holding his assailants at bay until the arrival of the gendarmerie.

* * *

Motoring in Europe has likewise taught a much needed lesson this summer to some of our American tourists, namely the necessity of avoiding at all costs, accidents or disputes, when accompanied by persons whose identity it would be embarrassing to reveal. Thus one well-known New York bachelor, and another equally popular Benedict, whose better half had remained in this country, have been placed while abroad on awkward record by arrest with their companions, for driving their machines at excessive speed, which in one case resulted in a carriage accident. Both tourists have had much to explain since their return to this country, and while in one instance the matter has merely resulted in endless chaff, in the other more serious results are anticipated. It may be remembered in this connection that last year it was only through the intervention of the Emperor of Austria that a judicial separation was averted between the Duchess of Orleans and the Duke, owing to the fact that the latter's carelessness in running down a man near Gmunden, had brought to light the fact that the lady who was with him was not, as he had at first alleged the Duchess of Orleans, but an American actress, of greater note in Europe than in her native land.

* * *



MRS. W. S. DUVALL, A WELL-KNOWN SOCIETY LEADER OF WASHINGTON, D. C.

That the daughter of a King should have made use of a motor car to effect her escape from the captivity to which she had been consigned for several years under the pretext that she was insane, by her drunken and brutal husband, bent on retaining his hold upon her fortune, assures the motor car of a place in the most romantic annals of Old World royalty. The Princess in question is the eldest daughter of the King of the Belgians, who was married against her will at the age of seventeen to Prince Philip of Coburg, a man almost old enough to be her father, and even then unenviably renowned throughout Europe for his profligacy. Neglected, betrayed, insulted, and even beaten by the Prince, subjected to indignities of the most inconceivable character, the Princess, after having appealed in vain to her father for assistance and redress, eventually fled from her husband's roof escorted by a young Croatian officer, following in this respect the example of that other Princess of Coburg who was the mother of King Edward's father.

Unfortunately for Princess Louise, all her fortune is in the hands of her husband and of her father, and in her plight, she not with any criminal intent, but through ignorance of business matters, resorted to methods to obtain money which brought both her companion and herself within the clutches of the Austrian law. Both were arrested, and while the officer was sentenced by court-martial to military degradation and to several years' imprisonment, she was pronounced insane and consigned to the care of her husband, who at once placed her in a lunatic asylum.

Ever since the release of the ex-officer, Count Keglevitch, he has been endeavoring to rescue the Princess, who is perfectly sane, from her captivity, and in spite of the close guard maintained around her by her medical attendants and keepers, male as well as female, he succeeded in carrying her off last month from Bad Elster in a motor car. They managed to reach Berlin, and after remaining three days concealed by a socialist member of the Imperial Parliament, proceeded by motor to Paris, thus avoiding all danger of recognition at the various railroad stations, especially at the frontier, the mask and goggles which they both wore effectually concealing their identity. Their friends had meanwhile endeavored to divert suspicion by intimating that they were in hiding in Italy. But their journey from Bad Elster to Berlin and from the Prussian capital until they had crossed the German boundary into France, was full of the most exciting adventures and anxiety, the latter intensified by several breakdowns of the car, and the imminent danger to which they were exposed of arrest by the German police.

It is difficult as yet to predict what will be the outcome of this royal drama, in which popular sympathy is all with the unfortunate lady and against both her father, the King, and her husband, Prince Philip. But whatever the epilogue the fact remains that the Princess would be still a captive had it not been for the motor which carried her, accompanied by Count Keglevitch, through untold dangers to safety and freedom in France.

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EMPEROR WILLIAM OF GERMANY IS AN INVETERATE MOTORIST THESE DAYS

Newport's season is over, and everyone is grateful that the end has been reached. For it has been quite the dullest on record, its deadly monotony and dreariness being merely relieved by two or three very unsavory scandals, and by the very successful automobile races on the sand at the beginning of July. The Horse Show was a failure, while the visit of the fleet of the New York Yacht Club, as well as the yacht races, were fiascos; and in one word the social prestige of this once so fashionable city-by-the-sea may be on the wane. Many houses are on the market, and there are a number of well known people who do not hesitate to declare that they would never return to Newport if they were only able to dispose of their villas there to advantage. Newport's loss has, however, been the gain of Lenox, and owing to the fact that G. G. Haven, Sr., and other pronounced foes of the motor car have become enthusiastic converts to motoring, the drawbacks to perfect enjoyment—from a motorist's point of view—have been removed. Thanks largely to this, the season there has been the most brilliant in years, and Lenox seems destined in the future to take the place of Newport altogether, as the ultra-fashionable summer resort of the East.

* * *

Among the latest recruits to the ranks of automobilists is the Spanish Pretender Don Carlos, who was converted to motoring last month while spending September as usual at Lucerne in Switzerland. He has already made a number of tours and attracts a good deal of attention in his motor by reason of the fact that he is invariably accompanied by his enormous great Dane. King Edward's son-in-law, the Duke of Fife, and his wife Princess Louise have likewise started a motor and are using it a great deal up in Scotland. In fact, there is now no one of the English royal family who does not motor except the King's brother-in-law, Prince Christian, who remains very obdurate about the matter. Apropos of Windsor Park, no one is allowed to use a motor in it excepting the King, and the Prince and Princesses of his house.

* * *

It is not only in the side streets of New York and in Long Island and New Jersey villages that the feminine occupants of motor cars are subjected to volleys of brickbats, mud, dead animals, and other offals. In Europe the humbler classes are quite as ready with missiles of a kindred character, and the other day the Dowager Duchess of Aosta, while motoring in the neighborhood of Turin in Italy, accompanied only by her lady-in-waiting, was grazed by a jagged piece of stone which, hurled by a tramp, would have struck her square in the face had she not quickly lowered her head. The Duchess is a remarkably handsome woman, a sister of the Bonapartist Pretender, Prince Victor Bonaparte, and of that Prince Louis who is a general of cavalry in the Czar's army, while her husband, who was at the same time her uncle, was the late King of Italy's brother, Duke of Aosta, ex-King of Spain. Her marriage was an extraordinary one, and, dictated by her insatiable ambition, would have aroused nothing but reprobation in this country. For she was engaged to the present Duke of Aosta, the most handsome Prince of the reigning house of Italy, but jilted him on the eve of the date appointed for the wedding in order to marry his widowed father, an appallingly ugly and elderly man, her mother's brother, merely because he stood nearer in the line of succession to the throne than his son, and she thought that she would have a better chance of soon becoming Queen of Italy. Her hopes in this direction were, however, frustrated. For her husband died rather suddenly, and his son, whom she had spurned, took his place in the line of succession to the crown, marrying Princess Helen of Orleans. The Dowager Duchess is very extravagant, alike in her expenditures and in her behavior, and has furnished plenty of material by her indiscretions to the "chronique scandaleuse" of old world royalty.

* * *

Among the latest converts in New York society to the motor is George Griswold Haven, who last year was among the most bitter of its opponents. In fact, the war which he waged against them was of the most relentless character, and not content with shutting them out of his property at Lenox, he exerted his influence to have them barred from the grounds of the various clubs at this so fashionable summer resort. This year the signs to the effect that "automobiles are not allowed," have been removed from the club grounds, and George G. Haven boasts of having the finest Panhard car in the Berkshires. The example which he has thus set is being followed by many of those who last year were associated with him in his crusade against automobiles.

* * *

King Edward does not make any pretence of keeping within the legal speed limit when motoring, taking full advantage of the fact that by the terms of the constitution he is above the law of the land. Thus, just before leaving London for the season, he motored down from town to Newmarket, a distance of seventy miles, leaving Buckingham Palace at half-past three, and reaching his destination at six. The readers can easily calculate the rate at which the King must have run his machine in order to cover the distance in such quick time. The trip was additionally interesting by reason of the fact that it was the first time since the reign of Queen Anne that an English sovereign ever made the trip from London to Newmarket by road. King George IV never set foot upon the famous heath, but the Stuarts were passionately fond of horse racing, and good Queen Anne had inherited this trait, and visited Newmarket several times. But it is King Charles II who was of all English rulers the one who was most conspicuously identified with Newmarket, where he not only witnessed the races, but actually took part in them as gentleman rider.

* * *

Princess Metternich's floral corso at Vienna, which brought the season of the Austrian metropolis to so brilliant a close, was to all intents and purposes an automobile parade, for all the great ladies taking part therein were in motors decorated with flowers, while their parasols looked like small flower beds hoisted on high. Some represented one huge single flower, either falling bell-shaped over the owner or spreading its petals straight out all around the stalk, forming the handle. Princess Metternich headed the procession, her motor representing the Austrian yellow postcart, being richly decorated with marguerites of every shade of yellow held with yellow and orange colored bows.

MARSTON.



KING EDWARD VII EN ROUTE TO HIGHCLIFFE ON A SATURDAY HOLIDAY

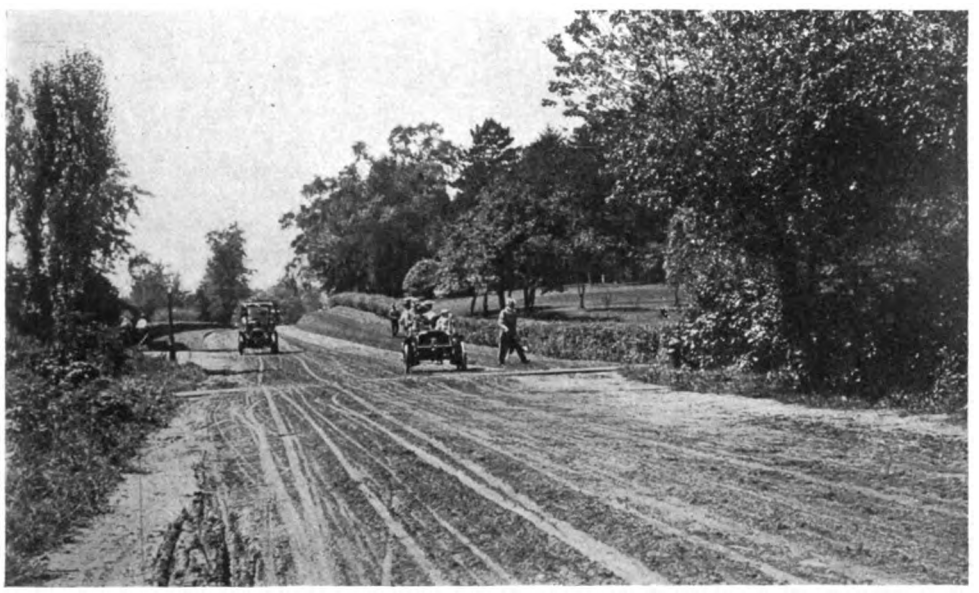
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DOWN THE JERSEY SHORE



BY
A. G. Batchelder

When one can add to the delights of motoring the salt-tempered ozone fresh from the briny billows of Old Ocean, the health-giving pastime offers inducements that place it far above any other recreation to be found in this athletic and outdoor age. There must be roads deserving of the name, and the country should be of the sort for which Nature need not blush—to complete the Mecca-pathway for the men and women who would motoring go.



THE FAMOUS RUMSON ROAD; BEAUTIFUL AND LUXURIANT

Down the Jersey shore, from the Highlands of the Navesink to the head of Barnegat Bay and beyond, the motor car can show to its users a stretch of country brimful of interesting scenes and streaked with highways that redound to the credit of New Jersey. What if one does meet with a stray mosquito and its consort when the road melts away into the distance and the invigorating breeze blends with the balmy air from the inland pines? And there are good hostelries in plenty and garages where the ordinary ills of the motor car can be treated with alacrity.

Jersey may well invite the motoring army to speed down its shore to the tune of the "sounding sea," for no other commonwealth can supply anything more attractive and satisfying.

Another year it is a safe prediction that more motor cars will be found between the twin lights of the Navesink and Cape May's beacon than in any similar mileage of wave-washed coast in this or any other country.

To cover the entire stretch of shore, the motorist should start in at the Atlantic Highlands, to reach which from New York City an old familiar route is utilized for the most part. It leads across Staten Island, ferrying at Tottenville to Perth Amboy, then through Fords Corners, Metuchen, and Highland Park, then across the Raritan River to New Brunswick, through Westons Mills, Hardenbergh Corners, Old Bridge, Browntown, Mount Pleasant, Matawan, Hazlet, Middletown, Chapel Hill, and Leonardville, with the Atlantic Highlands next reached. This is a great rendezvous for yachtsmen.

Not far from the Highlands is Water Witch, a picturesque spot made famous by Cooper's novel of the same name. A summer home here approaches the ideal, with its profusion of marine beauty. Sandy Hook pokes its squat nose out into the Atlantic, and exactly what it contains in the form of concealed armament is an army secret exceptionally well guarded. Suffice it to say, that any enemy attempting to visit the metropolis would quickly discover the number and worth of the disappearing guns hidden in the point of sand which serves as the last glimpse of land to the American leaving on a transatlantic voyage.

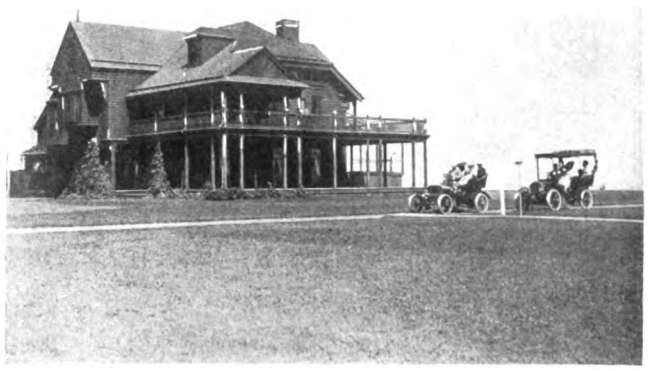
Crossing the bridge at the mouth of the Navesink one has a perfect view of the twin lights (only one of which is actually in use) on the highland above. It is a quick spin down the shore to Seabright, one of the most fashionable summer settlements along the shore. Of course, one crosses the bridge over the Shrewsbury River and covers the famous Rumson road, lined with its magnificent homes and held by many to be the most elaborate country road in the country. Velvety lawns and well-kept hedges, with houses concealed in the foliage, string along for several miles, and everything betokens the acme of prosperity.

Back to the shore road again, and the car quickly takes you through Low Moor, another aristocratic colony, and then to Galilee, where the fishermen by dint of toil snatch a subsistence from the turbulent deep. Life Saving Station No. 4 occasion-



AT GALILEE, WHERE THE FISHERMEN TOIL

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THE HOUSE WHEREIN MARTYRED GARFIELD DIED



A STUDY IN WHITE



SHARK RIVER AT BELMAR

ally finds something to do at this point. Monmouth Beach is another select colony, and next comes the first part of Long Branch. The once noted resort has lost considerable of its prestige, as is made apparent by several closed hotels and a general air of decay. The real life of the Branch is now located at West End, where the Pennsylvania Club still supplies in a quiet way an opportunity for those who desire to "buck the tiger." Long Branch was a pioneer on the North Jersey coast, and during the presidency of General Grant the place was at its greatest popularity.



At Elberon may be seen the cottage in which the life of the martyred Garfield ebbed away to the music of the sea.

The golf links at Deal Beach are second to none in the country, and the place itself offers a rare combination of ocean and lake. One could quickly become satisfied with Deal.

Asbury Park has taken a vast bound into favor during the past summer, owing to the energetic work of its enterprising hotelkeepers, who finally bought the beach from "Founder" Bradley. Ocean Grove preserves its air of sanctity and calmly proceeds as of yore to satisfy its patrons, unchanged by the gaiety of the lively city across Wesley Lake.



Avon-by-the-Sea has its sylvan lake and borders on Shark River, giving a varied entertainment to its summering population. Belmar is equally fortunate in the possession of an ocean and lake combination, and beautiful Spring Lake is similarly favored.

Sea Girt, the New Jersey State camp, is a source of attraction during the entire season, and the broad and smooth acres supply a drill ground impossible of betterment.

Manasquan is back from the ocean, and for those who want the breezes somewhat diluted with pine the place is very satisfactory. Here lives T. A. Zimmermann, better known as "Pop," and in the Osborn House may be seen various trophies won in cycling by his world-famous son. Across the Manasquan River, a few miles below, the motor car whirls into delightful Point Pleasant, where Arthur Augustus Zimmermann, the great cycler himself, lives, and conducts a well-patronized hotel. "Zimmy" still rides his bicycle for exercise, but recently has become addicted to motoring, and served as a starter at the Jersey shore carnival held during August.

From Point Pleasant it is a perfect sprint to Lakewood over the nine miles of ideal highway recently constructed, thanks to the liberality of George J. Gould and the enterprise of the two places connected. Where once was one of the toughest roads in Jersey, there now exists a macadam stretch that will compare with some of the European thoroughfares.

There is another excellent road running from Lakewood down to Toms River, and it continues good to Forked River. Just below Waretown trouble is likely to be experienced until the road builders have completed their work on two short bits of scarcely a quarter-mile each. It is a mighty good car that can plough through the deep sand, and a couple of farmers in the vicinity find much amusement and some profit in supplying horsepower for the horseless vehicles when the motor fails of its duty.

Not a few motorists have abandoned the idea of Atlantic City because of these bits of unfinished road, but the highway commissioners in the district express a belief that before the new year begins there will be nothing to interrupt progress on the way to Atlantic City. Once over these bad parts and the road immediately resumes its alluring invitation to pike along at a few miles faster than the legal rate of speed. This temptation may be yielded to in some degree with perfect safety, for houses are few and far between



ONE OF ASBURY PARK'S IMPROVEMENTS



TIRES WILL PUNCTURE



THE NEW JERSEY STATE CAMP AT SEA GIRT

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AT MANASQUAN, IN FRONT OF THE OSBORN HOUSE



CROSSING THE 'SQUAN BRIDGE TO POINT PLEASANT

and traffic along the road is light except possibly in the early morning.

Another year from the Atlantic Highlands to Atlantic City will be a frequent drive for thousands of motorists, and those who have been over it will not hesitate to recommend it without any reservation, perhaps labeling it as the finest ocean tour to be found on the Atlantic coast.

Nowhere does the motor tourist better appreciate bright sunshine and good roads than at the seashore; nowhere does a mishap seem so much out of place, or really bad weather get so thoroughly into the bone and marrow. The gay life of the seaside only serves to heighten the contrast between the good and the bad in weather. When Nature is in the proper mood familiar trips can be made over and over again without monotony, especially if one be favored with pleasant company. And in the intervals how comforting and how restful it is to lie down on the warm sands, looking out at times on the unbounded waters, perchance to discover a new sail, or take a last glance at one just dipping below the horizon.



A STREET IN PEACEFUL TOMS RIVER

But on the other hand, what can be more depressing to the spirits than to arise at early morn—perhaps with a touring plan already made—only to gaze out upon a tossing gray waste of waters which no longer reflect the laughing sunshine of yesterday. but instead a mass of sombre clouds overhead? Even this cheerless view may be shut out by banks of heavy fog or driving sheets of rain, filling the air with a penetrating dampness that seems chillier at the seashore than even on the tops of the mountains. Then it is that the very marrow of one's bones seems frozen, and the tourist unwittingly caught in such a predicament feels as if he might have swallowed an icicle and was himself radiating cold.

This may happen North in summer and South in winter, so variable is the temper of the sea, and the gay life maybe of the popular resort seems hushed and spiritless. The very pleasures anticipated from yesterday are only frivolous and unsatisfactory silhouettes of real things, and the most ardent optimist needs his steaming coffee and all the cheering influence of a driftwood fire to keep him from falling into the depths of melancholy. The bad weather, like an evil genius, seems to have control of everything. And if, late in the afternoon of a day already spoiled, the sun shows his reddened and angry face, the sight is not cheering but dispiriting. Indoor pleasures only seem worth while.

Happily, then, if the following morning break clear, and the genial sun chase the thick mists away! Life again becomes worth the living and motoring is a royal sport again. The start, now one day late, is made in high spirits, presaging a successful outing after all. Sunshine and shadow never linger and play over beach and ocean, on highland and lowland, as they do on an occasion like this.

Weather conditions have their effect on all mankind, and the fate of the tourist is usually determined by them.

Most fortunate of all is he who happens to find a cheerful hostelry with "good accommodations for man and beast" when the worst comes, and who can wait without too much impatience until the worst of it is over.

And down this Jersey coast there are good hotels of all kinds, and the roads soon recover from the effects of contrary weather.



DOWN BARNEGAT BAY WAY

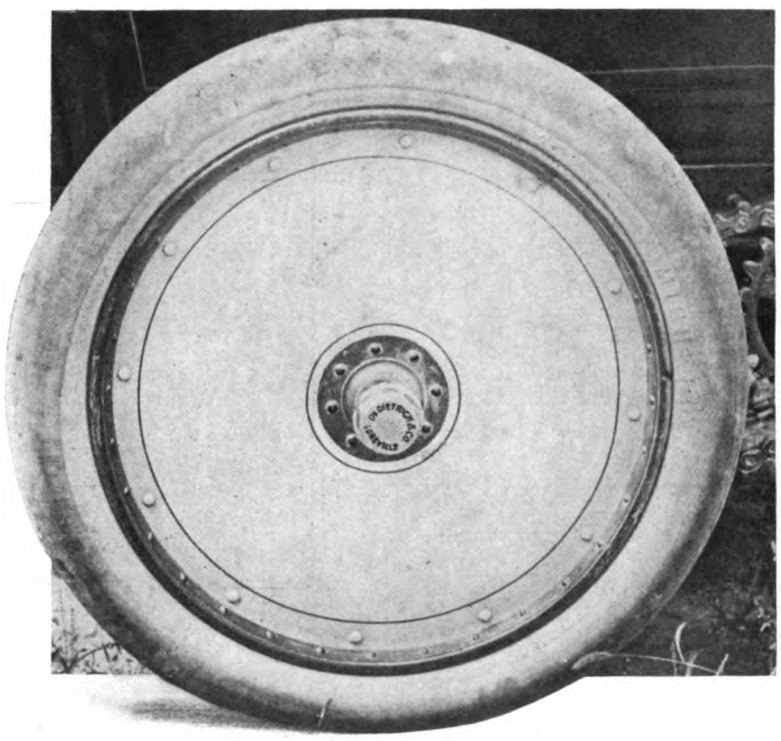


AS THE SHADES OF NIGHT WERE FALLING

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THE MOTOR-CAR WHEEL OF THE FUTURE

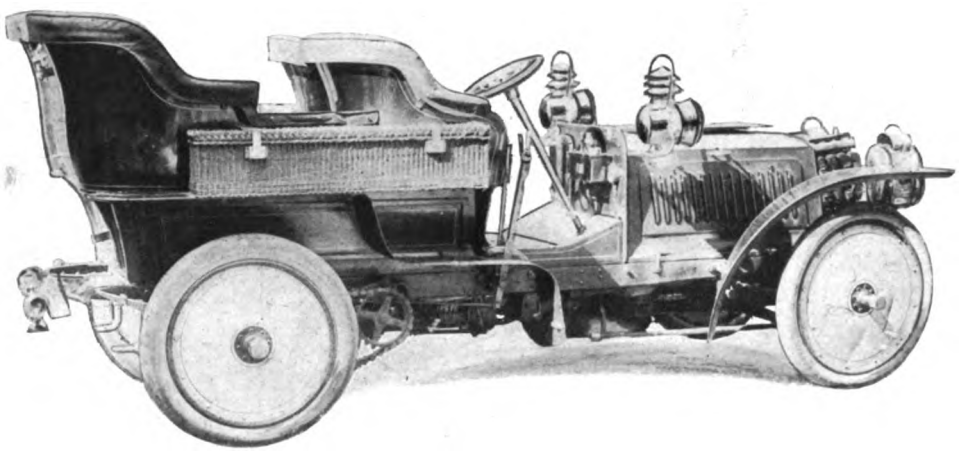
By Igniter



REAR WHEEL

On this page is pictured, in various aspects, an interesting example of the much-heralded disk wheel, which is coming gradually into vogue abroad, but in this country has appeared so far only in rare instances, and generally in cumbersome form.

In the opinion of many of the most advanced engineers in the motor-vehicle industry—and there seems good reason for their opinion—the disk wheel is likely before many years to supersede all other types for motor-car use.



A DE DIETRICH CAR FITTED WITH DISK WHEELS

The advantages of the disk wheel are all that any wheel could be expected to embody. It is fairly light, is inexpensive, tremendously strong, and not unsightly.

The last claim, perhaps, may be disputed by some, but it should be remembered by the disputants that the eye only reconciles itself to the appearance of a thing after it has become accustomed to seeing it. It is true enough that to-day, with spoked wheels the rule, the rather unique appearance of a disk wheel may occasion a slight jar to the hypersensitive, but undoubtedly this would be equally true of a spoked wheel, were disk wheels the rule.

It has been well said that all things mechanical are most beautiful when best designed to perform their functions. Thus it comes to be conceded that sailing ships and steamships, horses and locomotives, churches and skyscrapers, all possess peculiar and characteristic outlines that give them a certain grace in the eye of those familiar with them, and there is no reason that the disk wheel should be an exception to this general truth.

Having defended the disk wheel in its esthetic aspect, it should suffice simply to cite its more substantial merits, to make out a strong case for those who contend that it is destined soon to supplant all other forms.

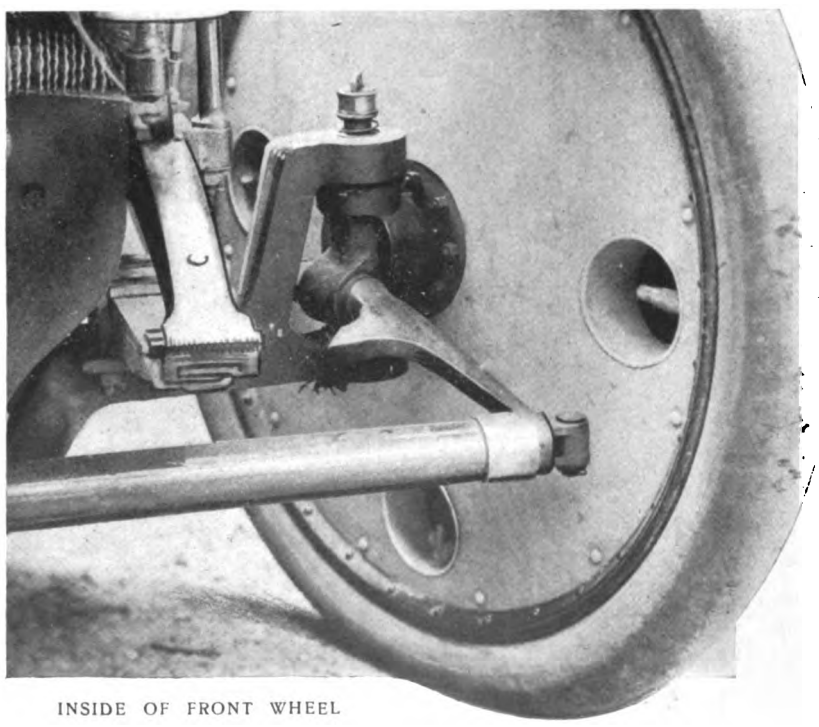
While it is hardly possible to make a disk wheel as light as a wire wheel, with good design, careful disposition of material, etc., such a wheel should weigh considerably less for a given strength than the wood and the steel wheels that now are the fashion. The best construction would seem to be that of two simple steel disks, pressed or spun into the form of a very flat cone—these to be bolted or riveted together upon a hub at the center and a rim at the edge. The hub could be any well-known and satisfactory type, slightly modified, while the rim could be of wood or steel, adapted to carry tires of any of the established standard forms. Probably the use of such types of modern tires as are secured in place by removable flanges or beads, might be preferable to the use of the ordinary clincher tire, because the latter are secured by lugs that project through the rim, between the spokes of present-day wheels. In the disk wheels illustrated herewith, on which clincher tires are used, however, provision for tire lugs is made by the holes sunk into the inside disk, as shown in one of the cuts.

To secure the utmost strength with the least material, the disks should be machined to make them thicker at the centers than at the edges, the thickness tapering off in direct proportion to the increase in the circumference of circles drawn at various distances from the hub. This, of course, would add to the expense of construction. Nevertheless it would seem highly desirable, inasmuch as ordinary methods of dishing the disks by pressing or pinning would tend to make them thinner at the center than at the edges, just the contrary of what they should be.

With proper shop facilities, it should be possible to turn out disk wheels perfectly true, at least as light as the wheels now in use, and very much stronger, at a cost far lower than that of any wheel built up in the prevailing complicated fashions, out of many separate members.

The strength of the disk construction is indisputable. Under no conceivable stress is there the slightest chance of such buckling or distortion as may occur with the spoked wheel. Nothing but a stress so great as to produce an absolute rending of the metal can injure seriously a disk wheel.

Not the least of the advantages of the disk construction is its cleanliness, there being no corners and projections to retain dust and mud. Another advantage, due to the absence of spokes, is that no stick or stone or similar obstacle can catch in the wheel and do damage, an item to be considered in the purchase of a motor car.



INSIDE OF FRONT WHEEL

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ARMY USE OF THE MOTOR CAR

By Augustus Post

At the recent U. S. Army maneuvers held in Prince William County, Virginia, an opportunity was given to demonstrate the fact that motor cars are invaluable to the army. Although not particularly qualified as yet to perform any of the functions of a fighting machine in itself, still as a means of transportation in some respects, they are distinctly superior to horses. Not only was this true where it was necessary to travel over roads, but it was clearly demonstrated that the motor car is able to go through the lanes and by-ways and even over the fields and through woods almost as rapidly as one might go on horseback. In fact, although at times it may be necessary to make a detour to avoid some obstruction, the much faster time made over the road enables one to cover a great deal more territory and with much less fatigue.



HE FOUGHT IN GRAY



GEN. BELL, MRS. GEN. CORBIN, AND MRS. GEN. GRANT IN WHITE STEAMER

The signal corps of the army had in use several motor cars fitted to lay its telephone and telegraph wires and other instruments. One of these cars was attached to General Bell's division, and he employed it very frequently for taking him to a point where his horse previously had been sent, when he would leave the car for the purpose of reconnoissance and survey, returning to be driven home in the car, thus enabling him to save a great deal of time. Needless to say, it is much easier to ride even over extremely rough roads for eight or ten miles than it is to ride on horseback.



A PICTURESQUE BRIDGE OF THE OLD STYLE NEAR THE BATTLEFIELD

The battery of artillery attached to General Bell's division was equipped with a 24-horsepower machine, which contained a dynamo for lighting purposes, a power machine lathe, a full set of tools, and a windlass in front connected with the engine, with which it could not only pull itself but drag a cannon over steep and rough places. This vehicle weighed 12,000 pounds, carried practically a field repair outfit, and was able to make minor repairs of the guns and also carry dummy projectiles, etc., for them in the field. I believe two were made for the Government, the other being in California. This one was equipped with solid rubber tires and very large wheels, and was able to go over the rough roads between the camp and Washington with considerable ease. Extra chains were carried to put around the wheels when it was slippery, and I understand that it was able to go wherever the battery went.

Besides these cars that I have mentioned, there were three White steam touring cars attached to Major General Corbin's staff for his use, and they were much in demand. He was able to visit both the camps of General Bell and General Grant, some fifteen miles apart, with much more comfort than would have been possible in any other way. The army ambulances which are usually used are uncomfortable for any lengthy journey, and, of course, the four miles with which they are usually equipped having no comparison to the speed of a modern motor car, even though the road may be exceedingly rough. General Corbin also was able during the maneuvers to ride up and down both of the opposing lines of battle, from extreme flank to flank, and survey the situation from various points of vantage, and this in the few hours during which the several actions were taking place. General Corbin himself expressed the most sanguine views as to the absolute necessity of the use of motor cars by the army in the future, as has already been

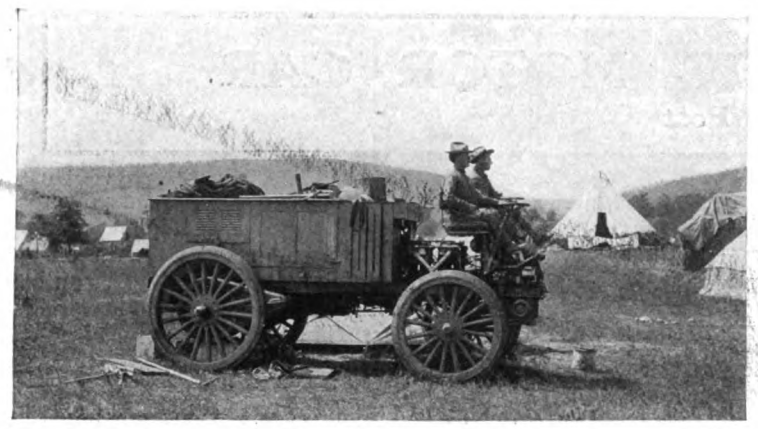


A METHOD OF TRANSPORTATION SOON TO BE DISCARDED



LONGED FOR THE USE OF THE CAR AS THEY MARCHED PAST

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THE BATTERY WAGON THAT PROVED ITS WORTH



THE WINTON CAR EMPLOYED BY THE SIGNAL CORPS

done by the armies of England, Germany, and France. The further question of transporting the troops by motor omnibus has not as yet been attempted in this country, but during the last day of the engagement at Gainesville, General Bell ordered all the transport wagons to the front, to be filled with the troops when the action was over, in order to bring them home and thus save walking more than necessary in order that they might be able to attend the review of the next day.

It would seem to be perfectly feasible to construct motor cars that will be able to carry the soldiers' impedimenta—blanket-rolls, haversacks, etc., and keep in constant touch with them, although in a protected situation to the rear so that they would be perfectly free to use their arms. It was a very distressing sight to see the skirmish line hampered by the blanket-roll, with its weight of almost 35 pounds, attempting to rush over an open field, climb fences, and perform other field duties indeed difficult for one not so encumbered.

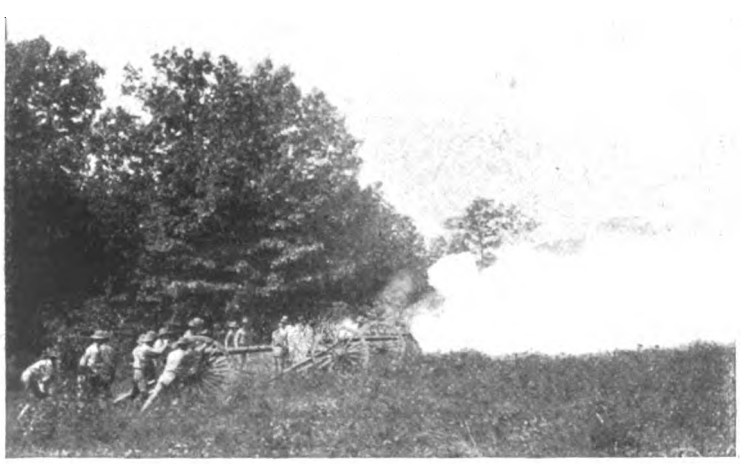


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THE ROADS WERE FAIR AND THE VIEWS DECIDEDLY INVITING.

The principal point brought out by the use of the motor car at these maneuvers was that their scope of usefulness was not limited entirely by the road, but that they could be of use in the field, and that they were invaluable as a means of surveying large acres of country and would be of great service in laying out lines of communication, carrying staff officers and despatches, and also by the engineers in surveying the country for the best locations for fortifications, camp sites, etc. Of course, the question of reliability is one which only time and experience can solve, and such demonstrations as the recent St. Louis tour helped to accomplish.

Russia, according to an English war correspondent, recently has fallen into line in the use of the armored motor car for military purposes. The first use of the steam locomotives in aggressive military operations was in the Anglo-Egyptian suppression of the rebellion of Arabi-Pasha; since that the motor car and its possibilities, as a military auxiliary, has occupied much attention, and been put to many practical tests, especially in Algeria by the French, as well as in the maneuvers in Italy and Germany, and in various ways by the British in South Africa. It is not probable that Russia purposes to use the motor car to haul supplies, but in the carrying of despatches and telegraph apparatus, and searchlights to prominent elevations, and for the use of the staff, an extremely useful function. If the motor car can be armed, or, rather, armor clad, and carry light, but far-reaching guns, similar to the mountain batteries hitherto carried on elephants, or by horses or mules, by the English in the mountainous borders of India, it is easily conceivable that they may be capable of planting a galling fire where the enemy is least expecting it; and they can retire as quickly and silently as they came. English experiments with armored motor cars, with one gun mounted in the prow and two smaller ones in the stern, proved the efficacy of such a flying battery, and it is easy to conceive that in the hands of defenders, who know every inch of the ground, they can be used with demoralizing effect. An invader, having had an assurance from scouts that no batteries existed within the zone of approach, would be sadly at a loss to find a brisk cannonade open all of a sudden from different directions.



WHILE THE ARTILLERY MEN WERE PLAYING AT WAR



THE INFANTRY TOOK ADVANTAGE OF THE OLD RAIL FENCES

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THE MAID AND THE MOTOR CAR

By Marion Gregory

Beverly rolled leisurely along the village street in his blustering red Dauntless, as usual mentally anathematizing himself. In fact, since Grace Carsdale, with her mother and her aunt, had come to town a-summering, this had been his daily occupation, and followed his calls at the Carsdale mansion with unfailing regularity. He already had exhausted an expressive vocabulary because he was unable to forget that at four o'clock an upstart black automobile would dash around to a side door, and Miss Grace would climb agilely in, and then madly whirl down the nearest street, while Mrs. Carsdale and that remnant of decayed gentility, Aunt Theodosia, were taking a very proper drive behind two thoroughly respectable, dignified horses. It was four o'clock now, and the throb of a motor sounded behind him. There was a swift panorama of a girl in a white mohair coat and a white cap dashing by with no sign of recognition. The initials "G. C." stared almost insolently at him from the back of the black car as he wheeled aside to escape a choking cloud of dust. He endured it as long as amiability would allow.

"I'll be hanged," he grumbled under his breath. "For three months I've taken her rebuffs and sarcasm, but I won't take her dust." He accelerated his motor, drawing nearer the hurrying black car. The girl in the white mohair coat kept her eyes steadily on the road before her.

Beverly said "Good evening" as he swung alongside. There was no change in her expression.

"Good evening!" He elevated his voice.

"Oh, it's you," she cried, ungraciously, coolly glancing at him. "I wondered who it might be that spoke."

"You ought to know me by this time," he rejoined, stiffly. Then, abruptly, "I see you're not wearing the roses I sent you."

"No. I gave them to Mary. She's studying botany, you know," she explained, airily.

"Indeed, perhaps she would like to have some orchids to tear to pieces," he suggested savagely.

"How dear of you! I'll tell her that you're——"

"Look here, Grace," he broke in, bluntly. "I'm not going to supply the graduates of Miss Morse's 'feminary' with air plants and other rare flora for botany's sake—nor for yours. I'm a patient man, goodness knows, but I'm becoming awfully tired of this treatment of yours. Any other man wouldn't stand it."

"Any other man wouldn't do it," she said, very sweetly.

"Nor shall I, ever again—you hear?" he cried, angrily. "I have a great notion to do something desperate."

"And what, pray? You don't know how to play poker."

"Run off with you, as brigands do," he announced, boldly.

"Catch me, and you can," she replied, saucily, and as she spoke her car bolted away from his and glided down the street at such an amazing speed that little children playing by the way ran terrified back to the sidewalk. Even the dogs lying in the shade of the trees skulked to the safe enclosures of fences, their tails between their legs.

Beverly is a man of discretion, which virtue is the better part of valor. He stopped long enough to find a telephone in the nearest drug store, connecting himself with the next village. He gave a hasty message to the party he sought, then climbed into his Dauntless again, and at a rapid pace followed the girl in the white mohair coat. Far ahead of him she could be seen, an indistinct figure in a swiftly-moving black object that glided over the white road like some strange land bird. His hat blew off by the wayside. But delays are not for pursuing lovers who race after disdainful ladyloves. Up hill and down dale the two machines sped, and the big red one gained markedly on the smaller black one; down dale and up hill they raced pell mell, until at last a smooth stretch of highway proclaimed their approach to the next village. It seemed to Beverly that the cars actually were dashing through space. He had a vision of falling coils of light-brown hair and the rosy contour of a pretty cheek, but he was content, for reasons of his own, to let her keep ahead. He scanned the perspective of street with a keen eye, and then, his gaze rewarded, slowed down, gave a little, satisfied laugh and nonchalantly took a cigar out of his pocket and lit it.

One minute more, and they had rolled far into the confines of the town. Suddenly Miss Carsdale stopped with such force that her black automobile reared almost directly upright in the air; directly in her path, a mounted officer in familiar blue uniform uplifted a warning hand. He was reinforced by a "bike cop," who leaned with an air of readiness against a fast motor cycle by the roadside. She could go no farther. The law had stopped her. In an instant, while her car was motionless, the red Dauntless dashed by, and came to an abrupt stop immediately in her way.

"I claim the prize," said Beverly, authoritatively.

"It's mean—unfair," protested Miss Carsdale. "If I hadn't been made to stop you never would have passed me. I don't see why I should be stopped; I'm going to report this to the proper authorities; I won't stand it."

One of the officers came up to her. "Look here, miss," he said, menacingly, "I don't want any such talk as that. I'll arrest you for speeding. There's been complaint about you before. Another word, and I'll take you off to the station house now—"

"Wait, officer," cried Beverly. "Let me talk with this young lady a minute. Grace," he asked, sternly, "there's been enough of this shilly-shallying. Now you've got to settle it once and for all. Are you going to marry me or not? You know the conditions of the race——"

"You didn't win, though——" She flashed back with angry eyes.

"Very well, then," he said, curtly. "Officer, I leave her in your hands."

"I trust that you will enjoy your night's lodgings, Miss Carsdale," his taunting words floated back to her as he stubbornly turned his Dauntless around. For one second the girl looked

(CONTINUED ON PAGE 74.)



SHE

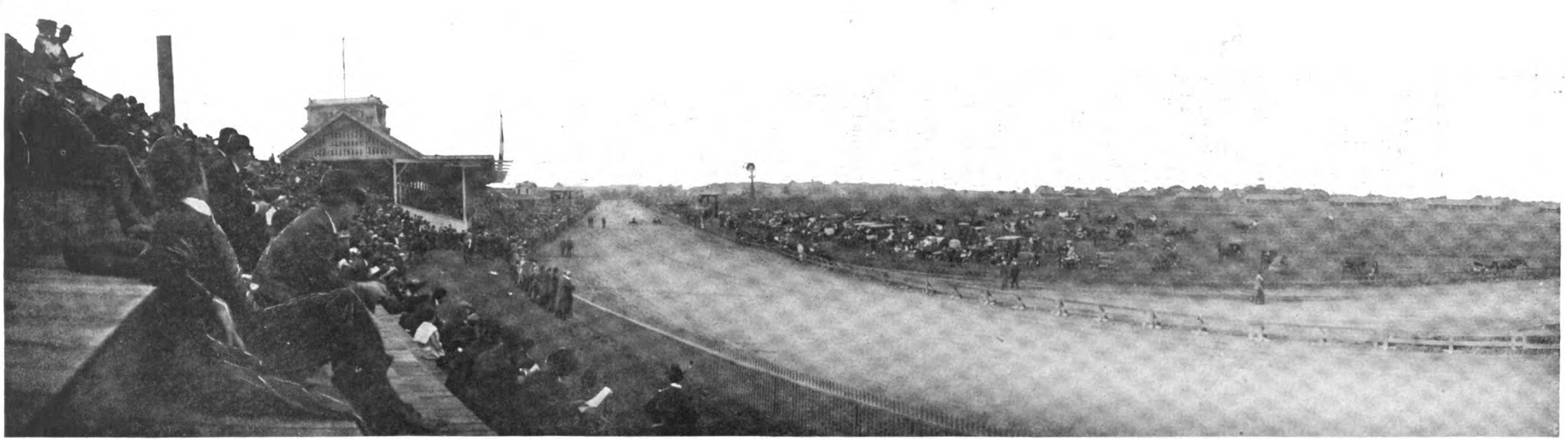
The breeze that day blew out of the west,
And gently it swayed the tall tree's crest;
It flurried the grasses at our feet,
And shyly caressed a violet sweet,
Down where the brooklet gurgles along,
Singing the while its joyous song,
And then on the mossy, tufted bank,
Among the buttercups ran and sank.
One laughing daisy, golden and fair
For me you gathered and placed in my hair,
While our motor-car stood in the shade of a tree.

HE

And was all I plucked, my love, my lass,
One dainty flower from out of the grass?
Nay—more than a daisy of golden hue—
I took my heart and gave it to you.
Breathing a blessing upon your head,
Breathing a hope that never has fled,
I tenderly kissed your finger tips,
And wished, dear love, that they were your lips,
While our motor-car stood in the shade of a tree.

Ida de Trafford-Bell

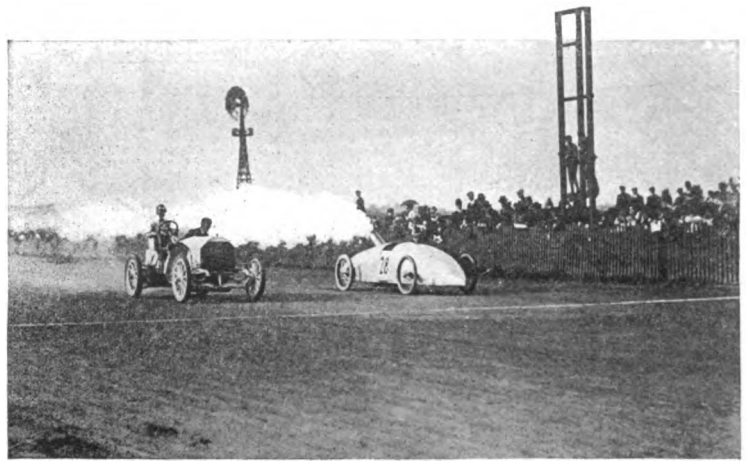
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THE NARRAGANSETT PARK TRACK, PROVIDENCE, R. I., WHERE THE SPECTATORS RANGED THEMSELVES ALONGSIDE THE FENCE, BUT LUCKILY THE RACING JUGGERNAUTS WERE ON THEIR GOOD BEHAVIOR

UNDER THE MINUTE MARK

Once upon a time racing at or near a mile-a-minute was considered phenomenal. It is under the minute mark—considerably under it—before the apathetic spectators became thoroughly interested. Track racing continues to attract the crowds, and on some courses like the Empire City track the proper precautions are taken to minimize the chances of accident. At other places the spectators are permitted to range themselves alongside a fragile fence and can almost touch the juggernauts as they rush past at record-breaking speed. As long as contestants are found for this dangerous form of competition, just that long will the public continue to give its patronage.



AT PROVIDENCE—"GASOLINE" BOWDEN MEETS "STEAM" ROSS

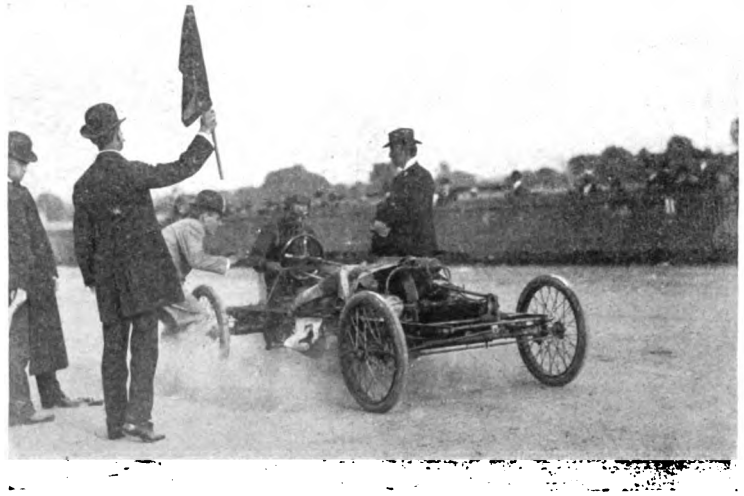
"In another year," said a prominent maker the other day, "the only participants left for track racing will be a few professional dare-devils who will risk their necks for the dollars until the public wearies of the spectacular features of motor competition on a circular track. The amateur drivers will gradually disappear from the scene, transferring their enthusiasm to long road contests or straightaway dashes."

At Providence, the record slate received a very thorough revision, and H. L. Bowden's new 90-horsepower Mercedes, driven by Charles Basle, swept the deck because of its great horsepower. William Wallace, the intrepid, took another fling at track sport, but on that day his Renault succumbed to a newcomer, a 20-horsepower Ford, driven by Frank Kulick, who hails from Milwaukee and not long since made his début in motor sport.

A. S. Lee, with a 24-horsepower Pope-Toledo touring car, appropriated three events, including two match races. The Stanley steamers, driven by Louis Ross and Paul Durbin, contributed new records for the class, but failed to get away with their gasoline opponents.

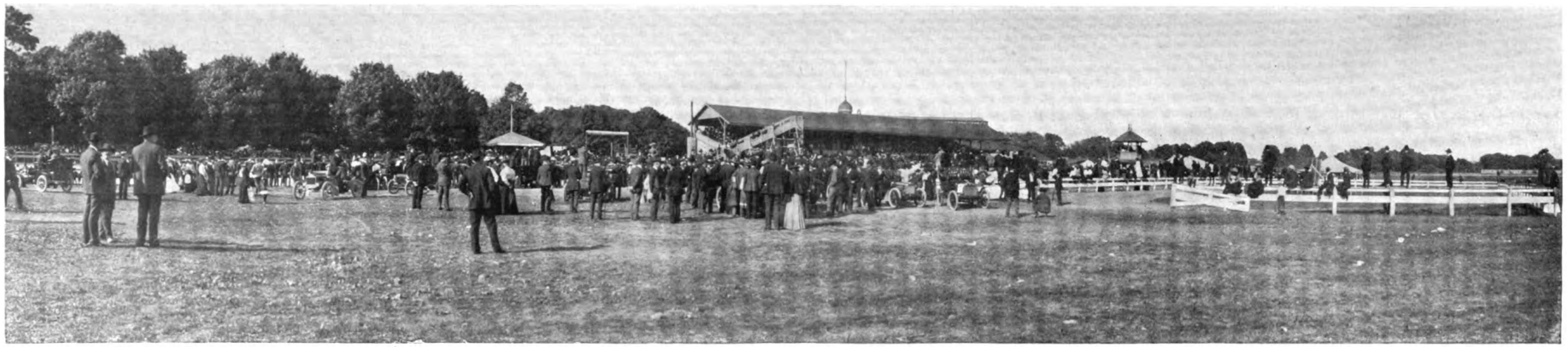
At Poughkeepsie, the big Mercedes owned by E. R. Thomas and driven by E. E. Hawley, naturally came to the front because of its horsepower, though Kulick and the little Ford made a plucky fight. Once more Lee won in the touring class with a Pope-Toledo, while the energetic Kulick captured the handicap. After the trial heats, Handicappers Riker and Birdsall revised their marks, and the result was an exciting final. Bald, the once-famous cycling champion, appeared for the first time in motor competition, but the Columbia gasoline car which he drove was hastily prepared, and he had to be content with second place in the touring class.

At the Empire City Track meet, the competition should have been the best of all, since there were entered several big cars of nearly the same horsepower, and closer finishes were anticipated. But the Bowden Mercedes, after a promising trial mile in 54 seconds, went to the stable with two cracked cylinders, and since the Premier Comet had suffered from a similar complaint the day before, the meet was robbed of the two rivals scheduled for a feature match. Joe Tracy, driving the 30-horsepower Renault of W. Gould Brokaw, figured as the star of the day. The international race was captured by the Renault, and Hawley with the Thomas Mercedes finished 6 2-5 seconds in the rear. Tracy also scored in the Knickerbocker Cup. Incidentally, he made many new middleweight class rec-



KULICK IN HIS FORD FLYER STARTING FROM SCRATCH AT POUGHKEEPSIE

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AT THE POUGHKEEPSIE. (N. Y.) TRACK, WHERE THE RACES WERE HELD IN CONJUNCTION WITH THE DUTCHESS COUNTY FAIR—20,000 PEOPLE WERE PRESENT

ords. The touring car class resulted in a good fight between George Soules, who with a 24-horsepower Pope-Toledo won by a close margin from A. E. Morrison with a 24-horsepower Peerless. Paul Sartori, with a 24-horsepower Fiat, crossed the line first in the Empire handicap. Walter Christie's new four-cylinder did an unofficial trial mile in 1:05, but was not entered in the regular events.

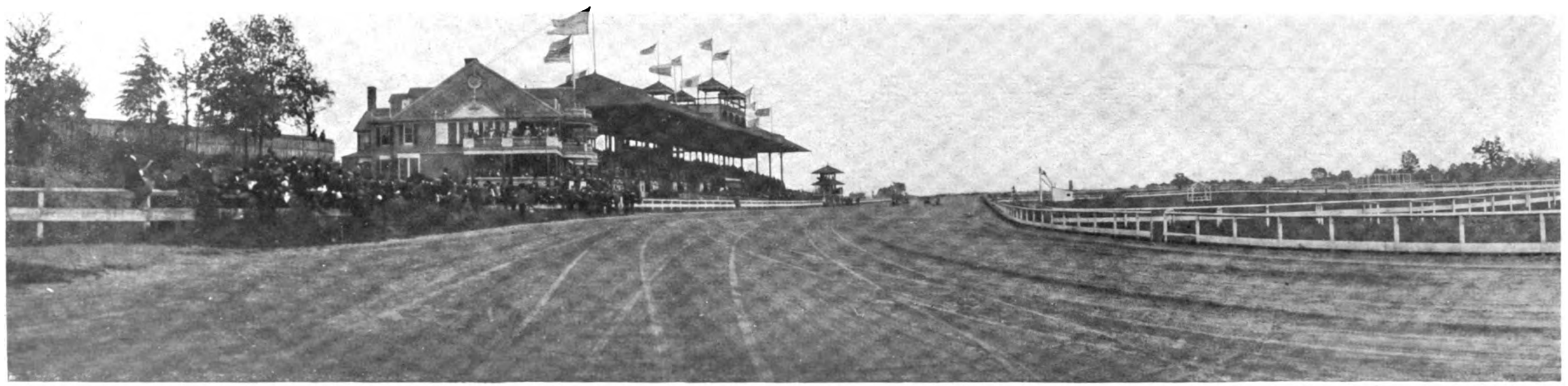
Everyone interested in motor sport awaits with expectation the Vanderbilt Cup race, scheduled for October 8 on Long Island. Since it will be the first event of its kind ever held in this country, with conditions practically similar to those governing the Gordon-Bennett, the race assumes an international importance that adds greatly to its prestige. While the foreign cars predominate in the entry list, the patriotic American who shouts for the Stars and Stripes under all circumstances is not inclined to concede victory to the invader until the race is run.

Frank Croker, with a 75-horsepower S. & M. Simplex; A. C. Webb, with a 60-horsepower Pope-Toledo; Charles Schmidt, with the Packard "Gray Wolf"; Joe Tracy, with a 40-horsepower Royal Tourist, and H. H. Lyttle, with a second and lesser horsepowered Pope-Toledo, compose the quintette that will represent the American industry.

William Wallace, with his new recently-imported 90-horsepower Fiat, and Paul Sartori, with another Fiat, owned by A. G. Vanderbilt, figure as the Italian pair.

Germany supplies five Mercedes, all of 60-horsepower. One is owned by Clarence Gray Dinsmore, and Werner, an Austrian, will drive it. S. B. Stevens will pilot his own machine. E. E. Hawley will be at the helm of the E. R. Thomas car. Carl Mensel will drive the machine owned by George Arents, Jr., leaving the handler of the fifth Mercedes, owned by Isadore Wormser, unknown at this writing.

France will make its bid probably with six cars. Heath, an American, who has lived in Paris for many years, and won the Circuit des Ardennes this year, will drive his winning Panhard, and Teste and Tart will be the drivers of the two other machines of the same make. Albert Clément will guide the Clément-Bayard; M. G. Bernin will drive the new Renault of W. Gould Brokaw, and the great Gabriel will appear with the De Dietrich flyer. The White Company made two entries, but unfortunately it was found out at the eleventh hour that



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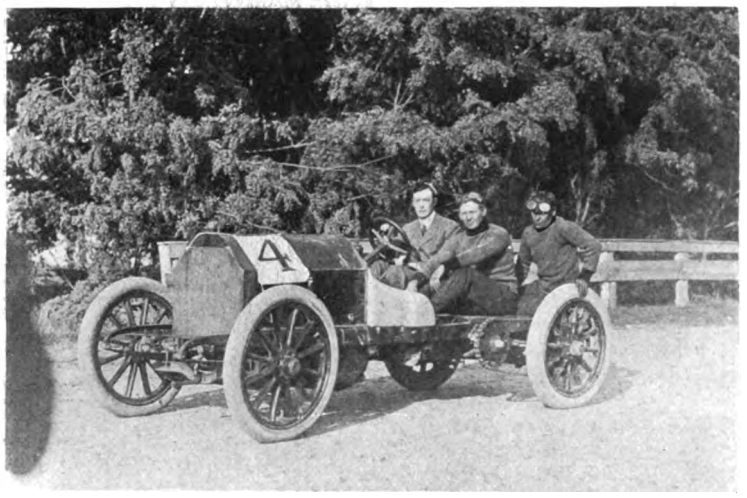
it was not possible to complete the cars in time for the race.

The Long Island course over which the race will take place will be guarded thoroughly, and every precaution possible will be taken to prevent an accident. The road has been well oiled and is practically dustless, and the dangerous turns are plainly marked. All of the contestants will have become familiar with the course and motor enthusiasts await with impatience the great race.



A LOOK UP THE HOMESTRETCH AT PROVIDENCE—THE DUST WAS PLENTIFUL

The battle of the tires will have an inning in the Vanderbilt race. The Michelin company offered a prize of $1,000 to the winner, if his machine is fitted with its make of tire, and $500 each to second, third, and fourth, with the same condition governing. Then along came the Continental company with an offer calling for $1,000 to the winner (of course, if Continental tires are used), $500 to second, $250 to third, and $100 to fourth.



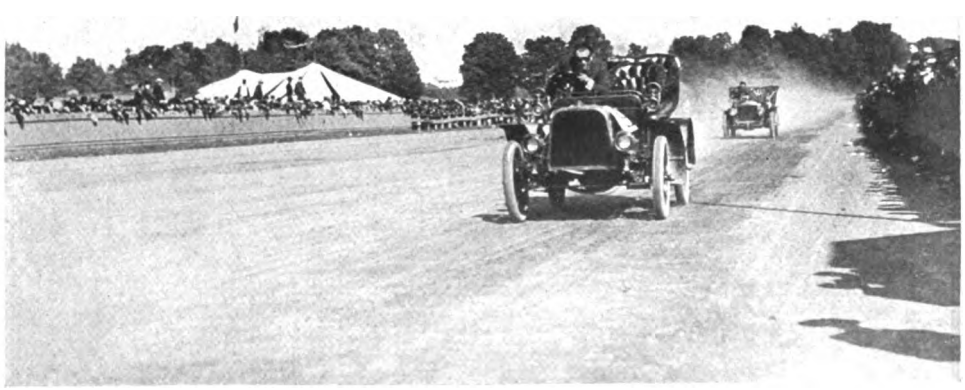
E. R. THOMAS AND HIS RACING DRIVER, EDWARD HAWLEY



E. C. BALD IN A COLUMBIA MAKING HIS DEBUT AT POUGHKEEPSIE

True it is that the race which will start at 6 o'clock on the morning of October 8 bears a foreign tinge as far as the chances of the American entrants are concerned. It is not entirely a case of machines, but the greater experience of the pilots of the foreign cars will give them a decided advantage over the American drivers.

Gabriel, because of his Paris-Madrid performance, is looked upon by the experts as the most probable one, but the recent victory of Heath (an American with a Parisian address) in winning the Ardennes event gave him many admirers. Teste and Tarte have excellent foreign records and young Clement figures among the established successful drivers. Werner, who will drive Mr. Dinsmore's machine, has a good rating, though not considered the equal of Gabriel. Sartori, Bernin, and Mensel are the American-ized foreigners who will drive the foreign cars owned by Americans. Hawley, an American, will drive the foreign car of E. R. Thomas. William Wallace, S. B. Stevens, and Frank Croker are the only simon-pure amateurs who will engage in the struggle, driving their own cars and Mr. Croker pinning his faith to an American-made machine. Schmidt, the Gray Wolf driver, had an extensive experience with Fournier, having been the companion of the famous Frenchman on the occasion of his victories of the Paris-Bordeaux and Paris-Berlin races. Webb and Lyttle have done fairly well, and the first-named is considered a possibility among the top-notch ones. Reliable Joe Tracy will do the best possible with his somewhat hastily-prepared racer, but complete candidness brings forth the admission on all sides that if an American car wins it will be the cause of much surprise. During ten times around the circuit of 30.24 miles much may happen, and luck has more or less to do with motor racing. It may be that the first one to reach the Westbury Pump Site in the final rush of the cars will be a "dark horse" whose jump into fame will be as sudden and unexpected as a thunderbolt from a clear sky.



A. S. LEE WITH A 24-HORSEPOWER POPE-TOLEDO WINNING THE TOURING CAR CLASS AT POUGHKEEPSIE

The experience gained in the Long Island race should prove invaluable to the American drivers, for at least two of them have hopes of participating in the 1905 Gordon Bennett. The proof of the pudding being in the eating, it holds to a greater degree that the worth of the driver is made apparent in the race—and in such a scurry and nerve-racking battle as the Vanderbilt contest is certain to be, none will question the ability of the one who wins—or, for the matter of that, of some who loose.

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BREAKING THE TRANSCONTINENTAL RECORD

By Tourist



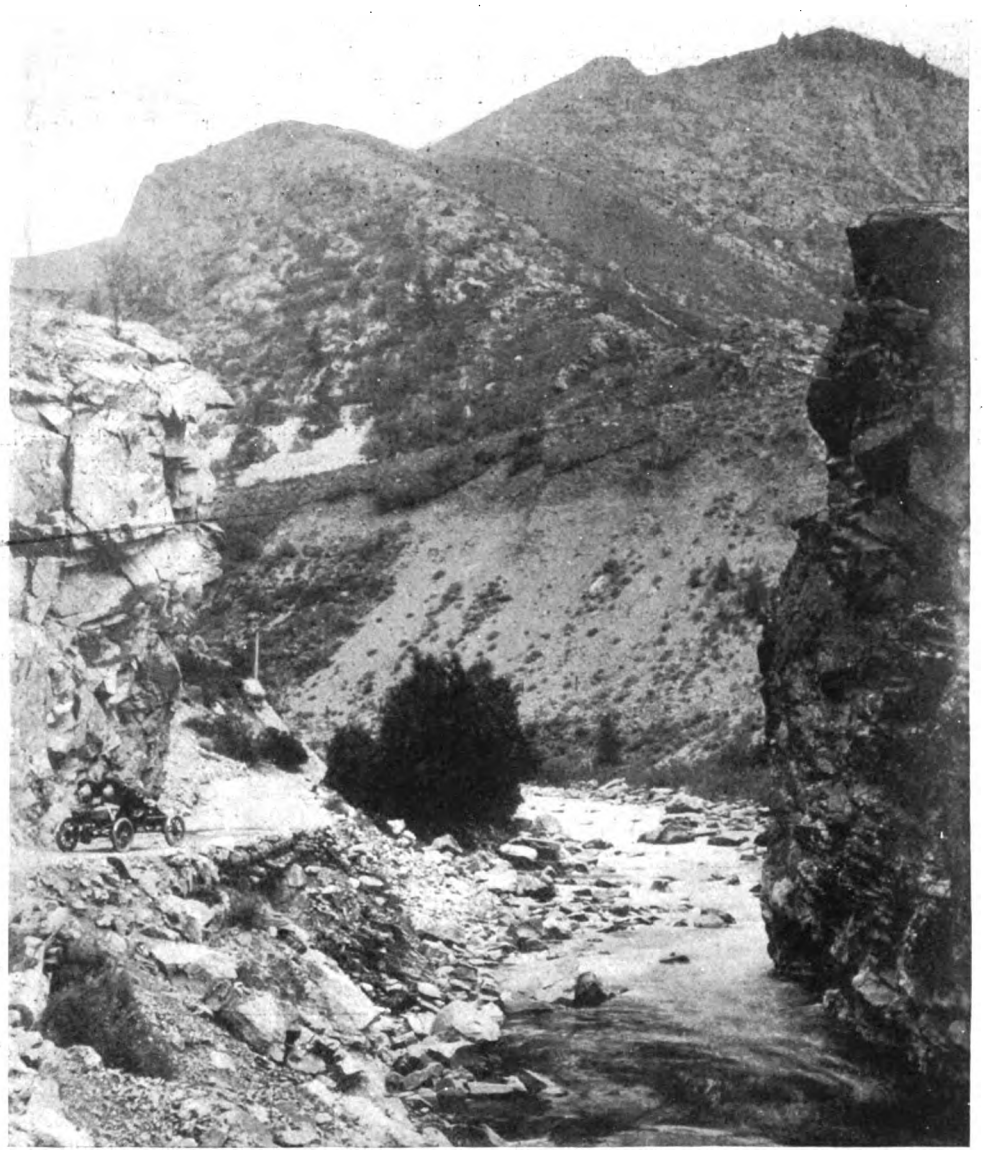
From San Francisco to New York in 32 days 17 hours 20 minutes, over 4,500 miles of the worst roads in the world, is the latest achievement of the motor car. When L. L. Whitman and C. S. Caris, with a 10-horsepower Franklin, ended their long journey in New York City, on September 3, having left San Francisco August 1, they had the satisfaction of knowing that they had come across the continent in quicker time than the quickest who had gone before, excepting only travelers by railway train. And the letter that President Sherwin of the Automobile Club of California gave to Mr. Whitman to deliver to President Scarritt of the Automobile Club of America, possesses the unique distinction of having been transmitted from ocean to ocean faster than any similar missive that has not gone by rail. Met upon their entry into New York by "Chief" Camacho and a deputation of Franklin users, the tourists were escorted to the Automobile Club of America, where Mr. Whitman handed the Sherwin letter to President Scarritt.

This new record seems conclusively to establish the fact that for long-distance journeying at good average speeds, the motor car is many times more efficient than any other means of transportation that is capable of individual use and control. Even the most elaborately-systematized horse service, such, for instance, as was used in the heyday of the pony express, before the time of the transcontinental railways, and by which express and mail matter were rushed across the country by relays of fast horses, was far inferior to the motor car, both in load carrying and for distance-covering capacity.

In spite of the good time made by the Franklin, there seems reason to believe that with as good luck and a slight change in route, several more days might be knocked off the record. This seems especially apparent when reference is had to the schedule of the trip. The most remarkable times are those from San Francisco to Ogden, and from Ogden to Denver, of ten and seven days respectively. Since these represent a direct halving of the best previous record, and cover what is by far the worst section of the route, it is little likely that they could be cut. Probably the same might be said of the four days taken to get from Denver to Omaha, a distance of 600 miles—unless exceptionally fortuitous road conditions could be depended upon. But by proceeding from Omaha to St. Louis and thence to New York by way of the old National Road, passing through Indianapolis, Ind., Columbus, Ohio, Wheeling, W. Va., Hagerstown, Md., and Philadelphia, it is likely that the Franklin time of twelve days—by way of Chicago, Toledo, and Cleveland, Erie, Pa., and Rochester, Syracuse, and Albany—might be reduced materially. At least one vehicle has run from Omaha to New York by the southern route in less than twelve days, and the fact that the roads are better and the distance at least 300 miles less would indicate a possible saving in time of two days or more.

Though the motor car stands demonstrated as much superior to horse service of any kind for any purpose, in the United States a comparison of the new conveyance with the railway train is at the present time unfair. For rail-carried vehicles there exist at least 250,000 miles of splendidly-built and well-maintained steel highways ramifying in every direction. Long stretches of track as straight as a ruler cut across the prairies, easy curves and grades wind through the mountains, tunnels pierce impassable peaks, trestles and embankments cross the valleys and swamps, and great bridges span the rivers and waterways. In fact, billions of dollars have been expended to improve American railways and to facilitate and make railway travel safe.

For the motor car all is different. A few well-paved streets in some cities, and perhaps a few good roads in their suburbs, are all that are provided for the whole United States, with its area of 3,692,125 square miles, and its population of 83,000,000. It is true that there are thousands upon thousands miles of road of some sort, in the



IN WEBER CANON, UTAH, ONE OF THE GRAND VIEWS CROSSING THE COUNTRY

(CONTINUED ON PAGE 46.)



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HOW THE IGNITION IS EFFECTED

Little Lessons in Motor Mechanics, No. 5

By Victor Lougheed

As was explained in Lesson No. 3, it is necessary in all types of gasoline engines to have some means of effecting the ignition of each fresh charge at the proper moment after it enters the cylinder. This creates the necessity for an *ignition system.*

Electric ignition, by means of an electric spark, is now used almost to the exclusion of older methods, and is in many respects superior to all others.

Hot-tube ignition, in which the charge in a cylinder is fired from a portion of it that enters a platinum or other metallic tubes, the walls of which are intensely heated by an external flame, has been commonly used in the past, and possesses several advantages.

Flame ignition, in which a sort of slide valve momentarily permits the actual contact of an external flame with the mixture in the cylinder, has been advocated and applied.

Ignition by compression, either of the charge itself, or of air in a small auxiliary cylinder, until the heat of incandescence is reached (developed at a pressure of about five hundred pounds to the square inch) is considered an ideal means, though its practical application is beset with difficulties.

Ignition from cylinder to cylinder, applied to multi-cylinder engines with the effect of causing a portion of the exploding mixture in one cylinder to be injected into a fresh charge in another, is simple and practicable, but some other form of ignition must be provided for starting.

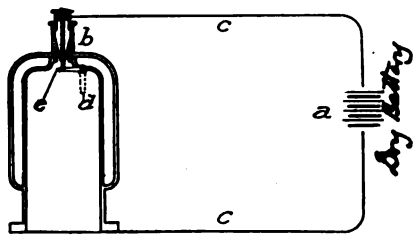


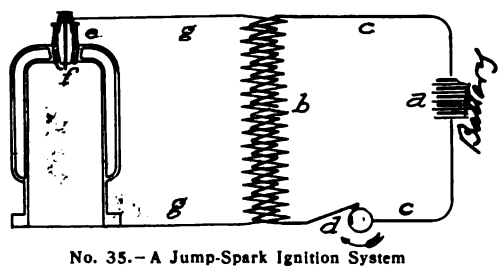
Fig. 34.—A Make-and-Break Ignition System

Catalytic ignition, based upon the peculiar chemical action of hydrocarbon gases when brought into contact with spongy platinum or platinum black, such contact being accompanied by "occlusion" and the evolution of considerable heat, is better theoretically than practically.

The simplest conceivable system of electric ignition requires a *source of current,* a *"make-and-break device"* in the cylinder for opening and closing the circuit, and wires for completing the circuit from the source of current through the make-and-break device. In the system sketched in Fig. 34, a dry battery *a* is the source of current, and the make-and-break device is shown at *b.* The circuit is completed by the wires *cc,* and it is evident that whenever the circuit is opened by a movement of the bell crank *d,* a spark will jump between the two points at *e.*

This system, though of ideal simplicity, requires slight elaboration for practical use. In the first place, without an unduly powerful current, the spark will not be intense enough always to insure ignition, and, in the second place, the installation of movable parts working through the wall of an engine cylinder requires most careful arrangement to insure reliability.

These considerations have led to the common employment of what is known as *jump-spark ignition,* in which the spark within the cylinder occurs between fixed sparking points, at all times slightly separated from each other, thus constituting a permanent break in the circuit. Such a system is shown in Fig. 35, in which *a* is the source of current, *b* is an *induction coil, cc* is the *primary circuit, d* is a *contact breaker* in the primary circuit, *e* is a spark plug passing through the cylinder wall and provided with sparking points with a gap between at *f,* and *gg* is the *secondary-circuit.* The two foregoing paragraphs explain the elementary principles of the two best known systems of electric ignition; in fact, of the only two in use, with the exception of the *magnetic-plug ignition system,* Fig. 36, similar to Fig. 34, but in which the circuit is broken by the action of a magnet instead of by direct mechanical means.



No. 35.—A Jump-Spark Ignition System

Sources of current for ignition systems are of two fundamental types—one, the *battery,* an aggregation of *cells* in which electricity is generated by chemical action; and the other the mechanical generator, in which the current is derived from mechanical movement.

Batteries are subdivided into two classes, *primary* and *secondary.* A primary cell consists of positive and negative electrodes, immersed in an electrolyte that by its chemical action upon the electrodes generates electric current. Such a cell when run down must have either the electrodes or the electrolyte, or both, renewed.

For motor-vehicle ignition, the *dry cell,* Fig. 37, is much used. In this a carbon rod, *a,* forming one electrode, is centered in granulated carbon and black oxide of manganese *b,* saturated with a solution of sal ammoniac in water. The whole is contained in a zinc can *c,* forming the other electrode, and this can is lined with some porous material

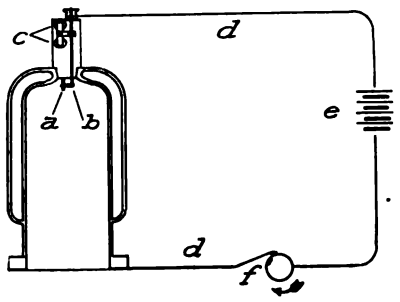


Fig. 36.—A Magnetic-Plug Ignition System

d, like blotting paper, which stores a small quantity of the electrolyte. Because of its low price, this form of primary battery may be thrown away when worn out.

A *storage or secondary cell,* Fig. 38, like the majority of primary cells, consists of positive and negative electrodes, *aaaa* and *bbbbb,* respectively, immersed in a liquid electrolyte *c,* the whole arrangement being such that the chemicals of which the electrodes and the electrolyte are composed enter into a new combination when generating current, but may be recombined in the original manner by passing a current into the cell. It thus is possible to use such a cell indefinitely, it from time to time being recharged by passing a current from some extraneous source through it.

All batteries deliver what is known as a direct current, a current flowing continuously in one direction, as water might flow around and around in an endless pipe.

Mechanical generators are either *magnetos* or *dynamos.* A magneto consists of coils of wire, composing an armature, made to revolve between the poles of a permanent magnet. A dynamo is similar in construction except that for the permanent magnet there is substituted an electromagnet, energized by having sent through its *field coils* a portion of the current it generates. All dynamos and magnetos generate alternating current, which may be likened to water in an endless pipe line, the water not flowing in a constant direction, but flowing a little way in one direction and then in another, the movement being practically a series of oscillations. Most ignition systems work only with direct current, so it is necessary in many mechanical generators to commutate the alternating current into direct by means of a *commutator* located on the armature shaft. By this, the alternating impulses are so transposed and rearranged as to produce practically a direct current. In some ignition systems, however, an alternating current is used with excellent results.

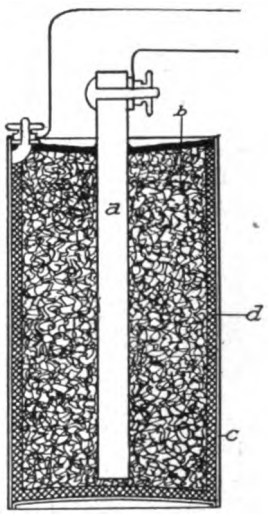


Fig. 37.—Dry Cell

Electric currents differ from one another in quantity and in pressure. The quantity of a current is expressed in *amperes,* and is the quality by which it produces its different effects, such as heating or producing electrolytic action in the mediums through which it passes. The pressure of a current is expressed in *volts* and is the quality of a given current that enables it to force its way for considerable distances through a conductor of more or less resistance. Resistance is measured in *ohms.* Every material substance possesses a definite resistance to electric current that is as much a property of it as are its color, hardness, weight, or any other more evident quality. An ohm is the amount of resistance through which one ampere of current will pass under one volt of pressure.

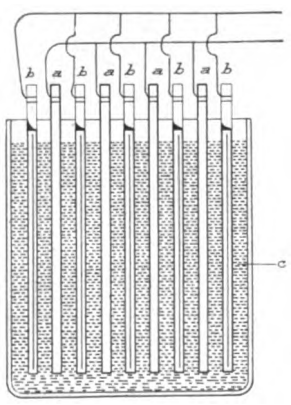


Fig. 38.—Storage Cell

Make-and-break ignition systems work with currents of considerably lower voltage than is necessary to the successful operation of a jump-spark system, because the whole circuit is of large copper wire, which is an excellent conductor and offers little resistance to the passage of the current. For the purpose of producing a very powerful spark, however, a *spark coil* is often introduced into make-and-break ignition systems, such a coil having the effect of producing a fatter and hotter spark at the point *e,* Fig. 34. Such a coil is necessary only for systems wherein a comparatively weak source of current, such as a dry battery, is employed.

Jump-spark ignition systems, because of the permanent air gap between the points of the spark plug, oppose a very high resistance to the passage of electric current, an air space of 1/32-inch alone requiring a much higher voltage to force a given current across it than is required to force the same amount of current through an extensive circuit of wire. Moreover, in a gasoline engine, the resistance between the air gap of the spark plug is very much higher than in the open air, because the compressed mixture in the cylinder is

(CONTINUED ON PAGE 46.)

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HOW MOTOR CAR TIRES ARE MADE

A Pictorial Trip Through the G. & J. Tire Company Factory, Indianapolis, U. S. A., Illustrating Modern and Approved Methods in Handling Rubber.

The trees from which rubber sap is obtained are found in the torrid zone. There are vast forests of rubber trees in certain portions of South America, but the difficulties attendant upon getting the rubber to the market are very great. The natives are "grub-staked" by brokers, located at seaport towns. The climate in the interior is very unhealthful, and the mortality consequently great. As many of the natives who have been equipped by the brokers never return, and as those that are successful can, at best, bring but a small quantity of rubber, the market price of rubber must necessarily be high. An idea of the difficulty of getting the rubber to the market can be gathered from the fact that it is brought from the interior down small streams, in canoes, the average length of such canoe trip being greater than the length of the Mississippi River.



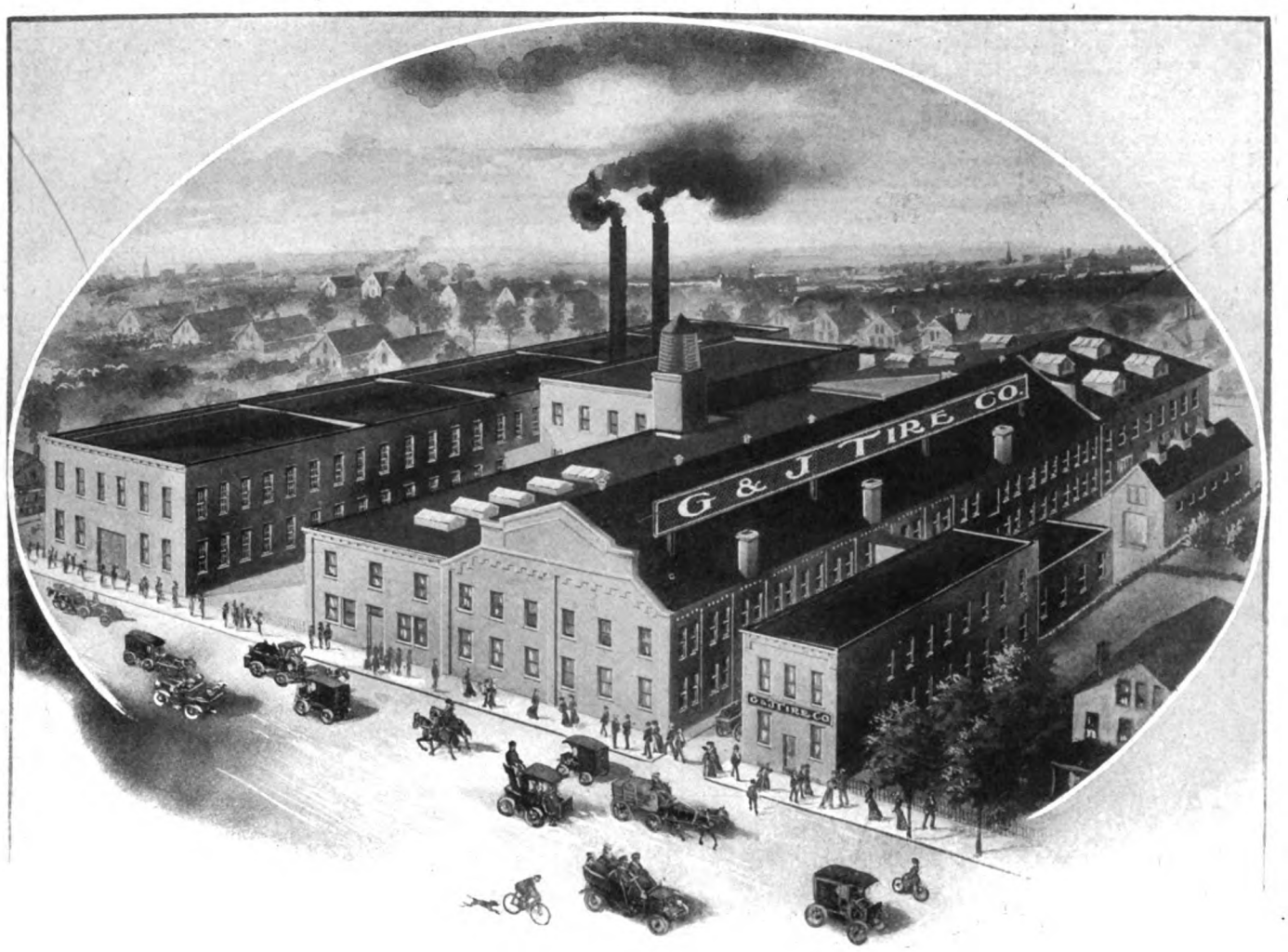
A RUBBER BISCUIT

The natives tap the rubber trees in much the same manner as maple trees are tapped in the United States, and the sap is gathered into large vats. The end of a long pole is dipped into the vat of gummy sap and passed through the smoke of a smouldering fire until the sap coagulates. This fire is built from palm nuts, the smoke of which has peculiar qualities that effect the proper curing of the rubber. This operation is repeated many times, until a large ball of rubber is collected at the end of the pole, made up of hundreds of thin layers of rubber. The ball of rubber is then cut open and the pole removed, and these halves are commonly called "rubber biscuits." On reaching the seaports, these rubber biscuits are inspected and graded "Fine," "Medium," and "Coarse." Fine is the best, and is the quality used in the manufacture of G. & J. tires. The rubber found in Africa and South Sea Islands, while good for some purposes, is not suitable for use in tires.

The first operation in the rubber factory is to place these biscuits in large vats of hot water, where they are soaked for many hours, to soften the rubber slightly to facilitate working it. The biscuits then go to the washing machines, which are made of two large rolls, spirally corrugated, between which the rubber is passed many times, with water constantly dripping on it. This operation removes all grit and dirt from the rubber and puts it into the form of long, thin sheets, tough and vibrant. The spiral corrugations of the rolls give the rubber a pebbled, porous appearance, exposing the greatest possible surface to the air.

The sheets of rubber are now sent to the dry room, where a temperature equivalent to normal summer heat is constantly maintained. The rubber is there hung over poles for several months, until every vestige of moisture has evaporated. To obtain proper results, it is necessary for rubber to be thoroughly dried before it is used. This fact makes it necessary to carry at all times an immense quantity of crude rubber, in order to maintain an ample supply of well-dried stock. Heat alone will not vulcanize rubber. It is necessary to add sulphur, which, when subjected to heat, produces a sulphuric gas, effecting what is termed vulcanization, giving the rubber the required body and fibre. In addition to sulphur, other ingredients are frequently necessary, these ingredients being varied in accordance with the purpose for which the rubber is to be used. In the compounding department, exact amounts of rubber, sulphur, and the other necessary materials are measured out, and the "batch" then is sent to the mixing mills.

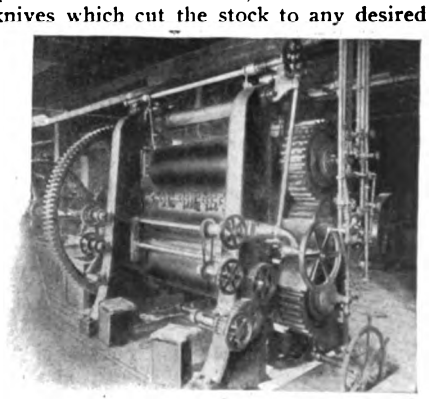
The mixing mills are large, smooth-surfaced rolls, which may be heated with steam, or cooled with water, at will. The rubber is worked between these rolls until it becomes soft and tacky, when the other ingredients are added, and the mixing, or kneading, process is continued until a perfect distribution of the materials has been effected. The mills require a great amount of power, and are all on an 8-inch line shaft, which is a direct prolongation of the shaft of the engine.



THE G. & J. FACTORY AT INDIANAPOLIS

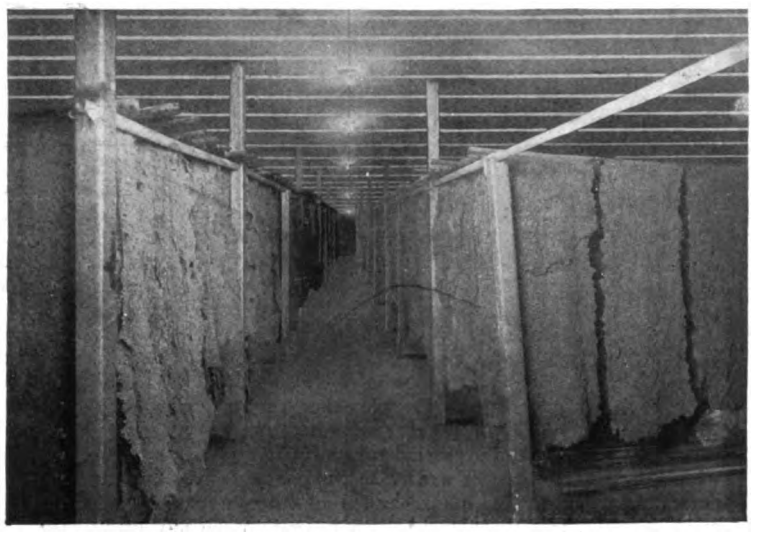
Calendering is the next process to which the rubber is subjected. Two types of calenders are used. The *stock calenders* are used for sheeting the rubber to any predetermined thickness, these calenders being equipped with circular knives which cut the stock to any desired width.

The *friction calenders* are used to coat the fabric which is employed in the body of the G. & J. tire with rubber, and to force the meshes of the fabric full of rubber, producing what is technically termed "frictioned fabric." This is done by passing a roll of fabric between the rolls of the calenders, one of which runs at different speed from the other, thus working the rubber thoroughly into the meshes of the fabric.



A STOCK CALENDER—10 FEET HIGH

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AISLE IN DRY ROOM



TELESCOPING INNER-TUBE ENDS

The fabrics are woven specially to designs which have been adopted after years of study of tire construction.

The rubber in the meshes of the fabric, produced by frictioning, acts as rivets in uniting the several layers of fabric in the complete tire, making the entire construction of the finished tire a compact and homogeneous mass.

And now we come to the actual or building up of the tire, and all G. & J. automobile tires are, strictly speaking, hand made. The fabric and rubber are passed through a number of processes and reach the tire assembler cut to the proper sizes and specifications according to the tire to be built. In assembling a tire, a steel core fills the space that becomes the air chamber when the tire is in use. Over this core is first drawn the required number of layers of fabric cut on a true bias with the bias alternately reversed. The number of layers is governed entirely by the size of tire to be made. Each layer has a coating of rubber which not only unites the various layers of fabric, but holds the individual threads out of contact, making the side walls thoroughly pliable, reducing friction to a minimum and at the same time practically eliminating the tendency of the tire to heat in the surface. Different layers of fabric extend around and through the bead of rubber which fits into the clincher rim in such a way as to allow the pressure to be exerted uniformly through all the layers of fabric. After the fabric has been assembled, which, in reality, is the body and strength of the tire, rubber known as the cover stock is next applied. The rubber tread is now put on in individual layers of one-eighth inch, it being necessary to knit each layer thoroughly by means of hand rollers in order to form a perfect union and avoid the possibility of air pockets, which would afterwards form blisters.

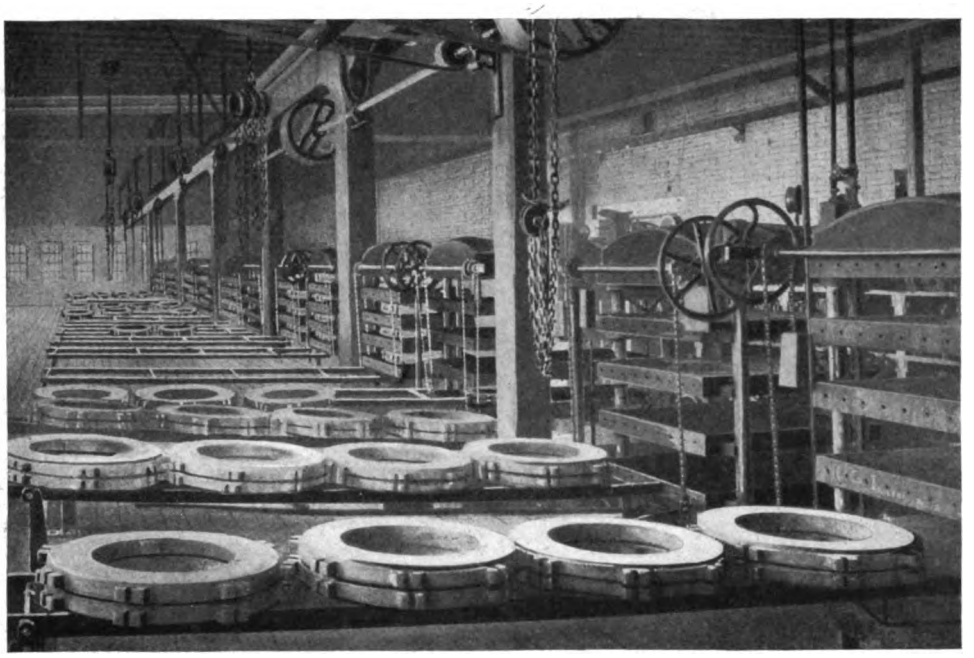


A MOTOR TIRE MAKER

When the tire leaves the builder's hands it goes to the press room, where it is placed (with the steel core, or center, still within it), in a large two-piece mold. This mold is then placed between the platens of one of the steam presses and subjected to tons of hydraulic pressure. The platens of the presses are hollow, and are heated by steam. Inspectors are employed, whose sole business it is to see that a uniform heat is maintained, and while passing through the process of vulcanization the fabric and rubber form one solid and homogeneous mass, and that the tires are removed at exactly the proper moment.

The vulcanizers are equipped with automatic regulators, which insure uniform steam pressure, but as an additional precaution gauges and thermometers are provided, and an inspector keeps constant watch over these vulcanizers.

Only selected, fine Para rubber is used in the inner tubes. The tubes are built on metal mandrels in such a way as to produce seamless tubes. The tubes are then wrapped in dampened cloths, placed in large vulcanizers, and cured in the open steam. When the tubes come from the vulcanizer, the ends are joined in a telescopic fashion and vulcanized by a special process. Every tube is carefully tested under inflation, in a vat of water, before leaving the tube department.



THE PRESS-ROOM

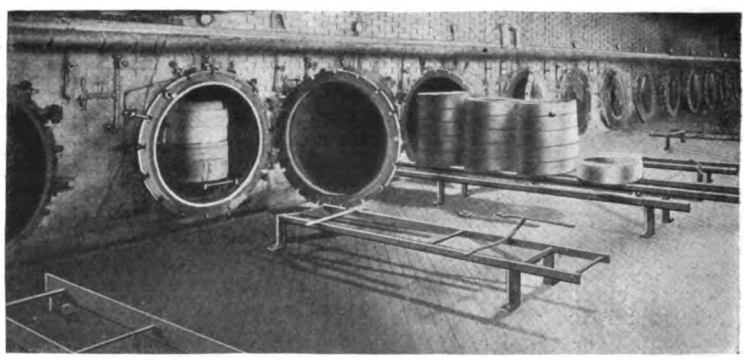
Each tire bears private marks, indicating every workman who has assisted in its production. A careful record is made, and the workmen receive cards reporting the class of work they have done during the week. No self-respecting workman wishes to see a bad record, and the result is that all strive earnestly for perfection.

The system of rigid inspection in force plays an important part in maintaining factory discipline, and in producing goods of high quality, and much of the success of the G. & J. tires is due to this system.

The head inspector has been employed in looking for imperfections in G. & J. tires for the past eleven years, and his assistants have also been most carefully schooled in the work. It is rarely that the slightest blemish escapes detection.

Properly to keep up a high-class standard it is necessary to maintain a machine shop, which in itself is a good sized factory, due to the fact that extreme accuracy and uniformity is necessary with the class of molds used in G. & J. tires.

All the mechanical accessories used by the G. & J. Tire Company are manufactured in their own machine shop. This is a very important feature, inasmuch as it permits them to produce their molds and various



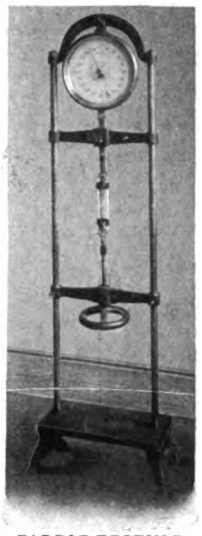
BATTERY OF BOILER-SHAPED VULCANIZERS—EACH FOUR FEET IN DIAMETER AND SIXTEEN FEET DEEP

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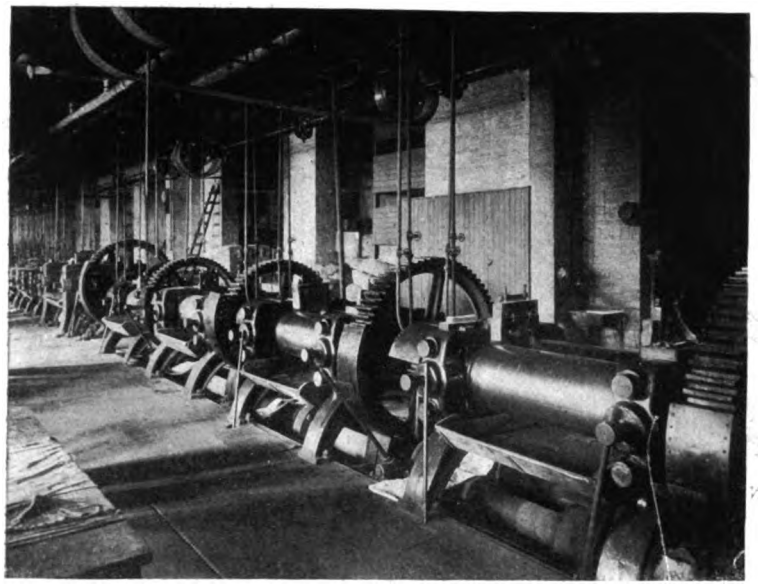


A CORNER IN THE FABRIC ROOM

other mechanical appliances to their own satisfaction, and in a degree of perfection that is all but impossible to attain when such work is done outside. Another very important advantage of a private machine shop is that it makes it possible to do repairs and to produce new mechanical appliances very expeditiously. In the busy season this means a tremendous gain in time to manufacturer, dealer, and customer. The power plant consists of six boilers of 600 horsepower, equipped with automatic coal conveyor, automatic feed, and automatic stokers; Nordberg Corliss Engines of 650 horsepower. This great horsepower is necessary chiefly for driving the immense rollers that must be used to work the crude rubber. A glance at the accompanying illustrations of the mixing mills, and of the large calendar, with their tremendous gears, slightly suggests what an enormous amount of power is necessary to drive these useful pieces of mechanism. The rubber offers such a great resistance in passing through the immense steel rolls that it requires a most extraordinary amount of power to revolve them.



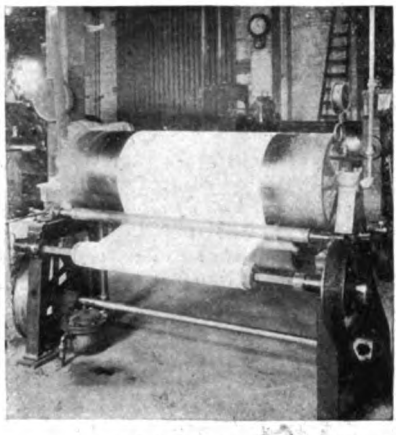
FABRIC-TESTING MACHINE



THE MIXING MILLS

The lighting plant is comprised of a 75 horsepower Westinghouse engine and two generators, making the company thoroughly independent of the city lighting companies, and further illustrating the completeness of their plant.

After many months of the severest tests the G. & J. Tire Company is bringing out a tire embodying some new and advanced features, which promises to prove somewhat of a sensation. The fabric used in its construction is made from selected, long staple, Sea Island cotton, being the strongest and most uniform cotton known. It is very carefully combed and all the short fibre removed. Small pieces are cut from every roll and subjected to a breaking test. A minimum strength of two hundred and fifty pounds per square inch in each layer of fabric is required. The G. & J. fabric is really a very loose, filmy web of exceedingly strong cotton twine. As originally woven, it is so loose that it is impossible to make it retain any shape, but in the process of calendering, which consists in subjecting it to the rubber treatment, it is rendered substantial enough to be handled, as in the manner of any closely-woven fabric. The light threads woven in the fabric at intervals serve merely to hold the main threads in position while handling. A number of layers of fabric are used, alternating layers crossing each other at right angles. This form of fabric allows each thread to act independently and freely, which causes the tire to be very resilient or lively. Between the two layers of fabric a sheet of rubber is placed, and while undergoing the process of vulcanization the threads imbed themselves in the rubber, which forms a cell about every thread, thus adding additional strength to each one, preventing their chafing each other, and at the same time rendering them impervious to moisture. Every roll of fabric, before being used, is passed slowly over a heated roll, to expel any slight dampness that may lurk in it. The fabric must be perfectly dry to work properly..



FABRIC-DRYING MACHINE

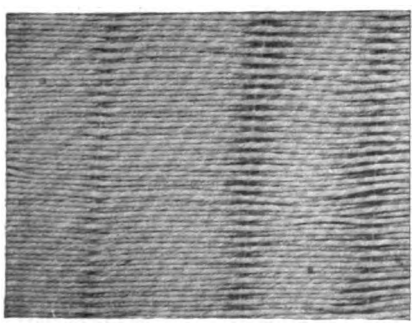
Further to illustrate the extreme care that must be taken to insure the fabric being at all times perfectly dry, and in every way free from all foreign substances, it is absolutely necessary that the work bench and even the hands of the operator be thoroughly clean. The slightest particle of grease or water will cause an air blister or bad place in a tire, which will develop only after vulcanization, with the result that the tire is rendered entirely worthless.

The necessity for such great care and attention to detail as prevail in the G. & J. factory will be well understood by any one familiar with the wear and stresses to which a motor-vehicle tire is subjected. It is only too evident that nothing but the best rubber and the stoutest fabric will give long mileage under hard service, and as these are points in which the G. & J. tire long has excelled, it certainly is interesting to know something of the methods of manufacture that bring about so perfect a result.

Very few people, even amongst the users of motor-car tires, have the least idea of the tremendous amount of care, the unremitting vigilance, and the knowledge of rubber that are called for in the successful manufacture of motor-car tires. Bearing the tremendous weights they do, subjected as they are to rough usage, tending to puncture and strain in every conceivable manner, it is most evident that the ingenuity and the experimenting necessary to produce a perfectly serviceable article is something marvelous. The G. & J. Company, however, belong in that class of manufacturers who are ever striving for something better than the market has yet supplied. Their corps of experts is forever testing new ideas and is quick to grasp hints from every source, making it a point to thrash out every suggestion thoroughly, to determine whether or not there is something worth while to be gained from it.



THE TIRE-MAKING DEPARTMENT



THE PECULIARLY-WOVEN FABRIC

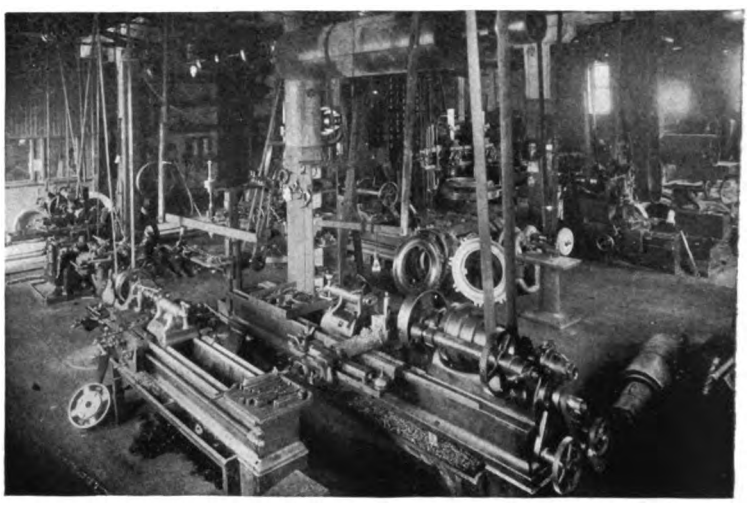


TABLES ON WHICH FABRIC IS CUT

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MAKING THE INNER TUBES



A THOROUGHLY EQUIPPED MACHINE SHOP

This policy, consistently maintained, is one of the secrets of the G. & J. success.

The marvelous track records that have been made by men like Barney Oldfield, on cars fitted with G. & J. tires, and the less spectacular, but not less widely-known reputation for service and endurance that has been established by G. & J. tires in the hands of thousands of private users, have for many years, commencing even before the days of the bicycle's greatest vogue, combined to place the product of this famous concern in the very van of vehicle progress.

It is the special form of construction, combined with the use of the highest grade rubber, that gives the G. & J. tire its great resiliency or speed. This is one of the features of G. & J. superiority.

A complete G. & J. tire, as shown herewith, consists of an outer cover, casing, or "shoe," with an inner tube inside of it.

The cover is held in place on a "clincher" rim by its thickened edges, or "beads," which hook under the curled-over retaining flanges of the rim.

The inner tube is of highly-elastic and absolutely air-tight rubber. Its function is to prevent the air from leaking out, and it is kept from bursting by the restraining walls of the cover, in turn reinforced by the pumped-up inner tube, which helps to force the beads of the cover securely into the retaining flanges of the rim, and makes of the tire an elastic, resilient whole, designed to combine a maximum of



TESTING INNER TUBES

cal use, in which the now universally standard clincher construction was employed. For many years, during and subsequent to the halcyon days of the safety bicycle, in which time single-tube and double-tube tires of many forms warred for supremacy, the G. & J. remained practically unchanged. One of the earliest tires in the field, after the first great invention of the pneumatic was made, it has been practically the only one always of such conceded merit that its original design, without material modification, has withstood the supreme tests of use and time. The sturdy part it thus played in the revolutionizing progress of the motor car, it is as sturdily maintaining; not, however, upon past reputation, but upon certain and established present worth—worth so evident that to demonstrate it, consideration need only be given to the great army of users, on track and road, in small cars and large cars, and in every section of the world, who prefer it to its competitors.

To one not familiar with the action of a high-grade pneumatic tire, it seems almost incredible that fabric and rubber are capable of carrying a heavy vehicle without going to pieces. Yet it is a well demonstrated, though singular, fact, that a G. & J. tire actually wears away slower than a steel tire in similar service. By weighing the tires of vehicles equally laden, one with rubber tires, and the other with steel, in an interesting series of tests made some time ago, and covering a great many miles



THE INSPECTION DEPARTMENT



A PORTION OF THE SHIPPING ROOM

tractive efficiency and cushioning effect with a maximum resistance to wear.

Not the least important factor in determining the durability of a tire is a high degree of flexibility combined with a most intimate binding together of the rubber and fabric. A good tire always is very flexible, permitting a maximum amount of distortion without injury, while at the same time absolutely avoiding any separation of the rubber and fabric under the severe bending stresses to which a pneumatic tire is subjected when in use. Because of the peculiar manner in which each thread of the fabric is indurated with and practically surrounded by rubber, as a result of the process of frictioning, the G. & J. tire can be invariably depended upon to remain intact to the very limit of usefulness.

As is well and generally known, the G. & J. tire was the first American tire brought into practi-



SECTION OF A COMPLETED TIRE

of running, it was proved conclusively that the loss in tire substance worn away, per ton mile, was very much greater in the case of the hard, resistant steel, than in the case of the soft, yielding rubber.

A thing always to be considered by the purchaser of a motor-car tire in this country, is that American road conditions are decidedly different from those that prevail in Continental Europe and elsewhere, where good roads are the rule rather than the exception. The G. &. J. tire is designed for rough going.

Few foreign tire makers have any conception of the quickness with which an average American road will cut up and grind away a rubber tire. Followers of foreign practice build for smooth highways; the G. &. J. Company builds for American road conditions. Consequently, American roads being as bad as any in the world, there is no conceivable service for which the G. & J. tire is not in every way the best.—*Adv.*

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33 DAYS SAN FRANCISCO TO NEW YORK ON

Diamond

1904 Tires

A WORLD'S RECORD FOR TIRE DURABILITY





L. L. Whitman, who has twice crossed the continent on Diamond Tires.

Absence of tire trouble helped L. L. Whitman cut the transcontinental time record in two.

The exact history of his tire experience sums up as follows:

From San Francisco to Rochelle, Ill., two punctures, both caused by nails.

At Rochelle a blowout, due to casing being worn and cut.

Original air in other tires at Chicago, where, to avoid possible loss of time, and to keep the tires, which were worn on tread and sides by ruts, in condition to be repaired, a new set of Diamond 1904 tires was applied. These tires reached New York with the Chicago air in them, and in excellent condition.

This is the third time Diamond tires have led the way across the continent. DIAMOND TIRES ALWAYS LEAD.

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THE DIAMOND RUBBER CO.

AKRON, OHIO

BRANCHES:
Detroit, 310 Woodward Avenue
Cleveland, 323 Huron Street
Chicago, 167-169 Lake Street
San Francisco, 608 Mission Street
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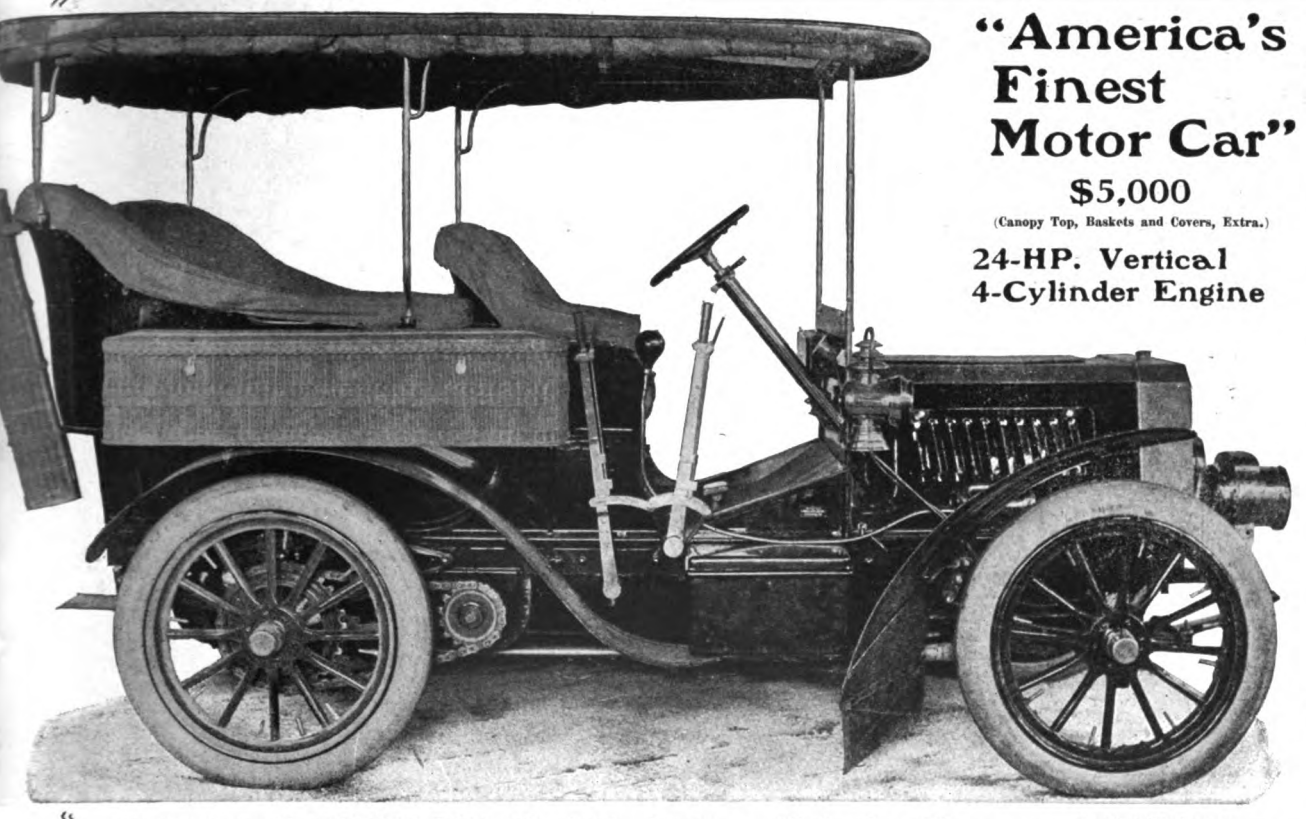
OUR BOOK ON THE USE AND CARE OF MOTOR TIRES, THE MOST COMPLETE OF ITS KIND PUBLISHED, READY SOON. YOURS FOR THE ASKING. ADDRESS DETACHABLE TIRE DEPARTMENT.

SELF-STARTING FROM THE SEAT

Send for Catalogue

"Matheson"

SILENT POWERFUL AUTOMATIC



"America's Finest Motor Car"

$5,000

(Canopy Top, Baskets and Covers, Extra.)

24-HP. Vertical 4-Cylinder Engine

Distinct Advantages:

- Wonderful Power
- Self-Starting from Seat
- Long Life Without Repairs
- Extreme Silence
- Absence of Vibration
- Automatic Carbureter, never requires Adjustment
- Automatic Speed Control by Governor
- Automatic Lubrication
- Individual Clutch Transmission, Change-Speed and Clutch Combined, never requires adjustment
- Single Lever Control
- Never-failing Ignition
- Irreversible Steering Gear
- Particularly Powerful Brakes
- Elastic Frame Roller Bearings
- Road clearance 14 inches
- Extreme Simplicity and Strength

Guarantee:

The "Matheson" Car is designed to compete principally with the very finest and highest priced cars of foreign manufacture—its exceptional quality and superior operation can only be fully appreciated by *actual comparison* with others, part for part, and by *actual road demonstration*. We *guarantee* it unequalled by any other car of like type, regardless of price. This guarantee is based on *eight years'* experience.

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IS THE

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Something New. Now drive comfortably all winter.

Absolutely Cold Wind and Water-Proof. Is instantly put on or off. Held to place by glove fasteners. Adjustable to fit anybody. Bifurcated for chauffeurs. Made of fine plush and rubber, leather shod.

WILL KEEP YOU WARM AND DRY IN ANY WEATHER

for it is a HEAVY, fine, plush-lined, AIR-TIGHT rubber bag, which may be instantly put on or off. It falls at your feet when you stand. It is the NEW ERA laprobe.

PRICE, STANDARD $7.50

"BABY BEAR" SKIN, FUR FRONT (Elaborate Robe) 15.00

Sent free to responsible people for examination and trial. Send for circular.

THE DAVIS ROBE CO.

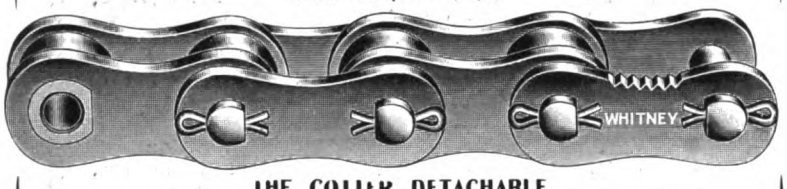
Patent Pending **13,123 CHAMPLAIN BUILDING, CHICAGO.**

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THE

WORCESTER TOP



with robe-rail and storm front

PATENTS PENDING

H. J. RUSSELL, WORCESTER, MASS.

"The Top With the Telescope Bow"



A CHINESE POPE-TOLEDO PARTY AT ST. LOUIS

How to Break the Transcontinental Record

(*Continued from page 39.*)

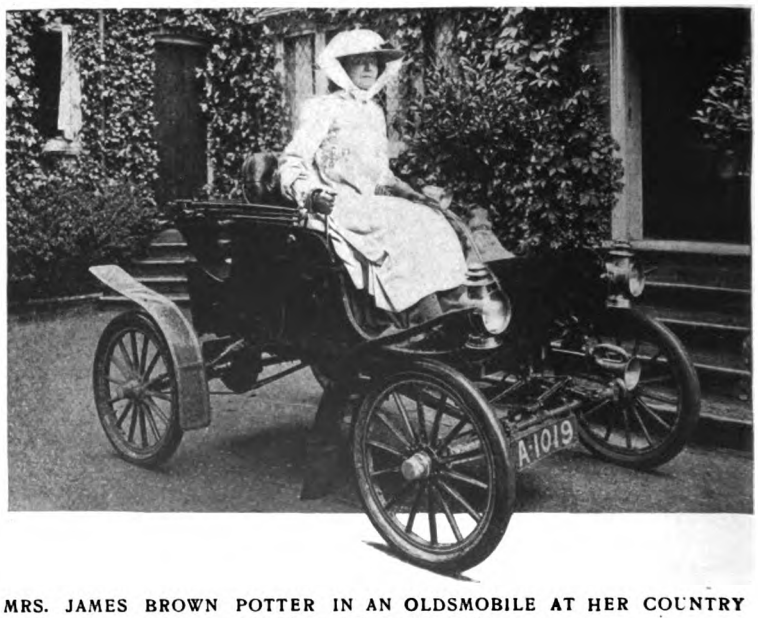
United States. Indeed, no country in the world possesses a greater mileage, but, unfortunately, nine hundred and ninety-nine miles of every thousand are mere trails along section lines—sandy or muddy paths with the larger rocks rolled off, but otherwise practically the same as when first laid out by wandering cows, and useful chiefly that the local farmers may work out their road taxes, or that village contractors and politicians may rob their constituents. Certainly there rarely is



MR. AND MRS. GEORGE P. TANGEMAN, WITH COURIER AND CHAUFFEUR, LEAVING SALZBURG FOR MUNICH IN THEIR 24-30 FIAT

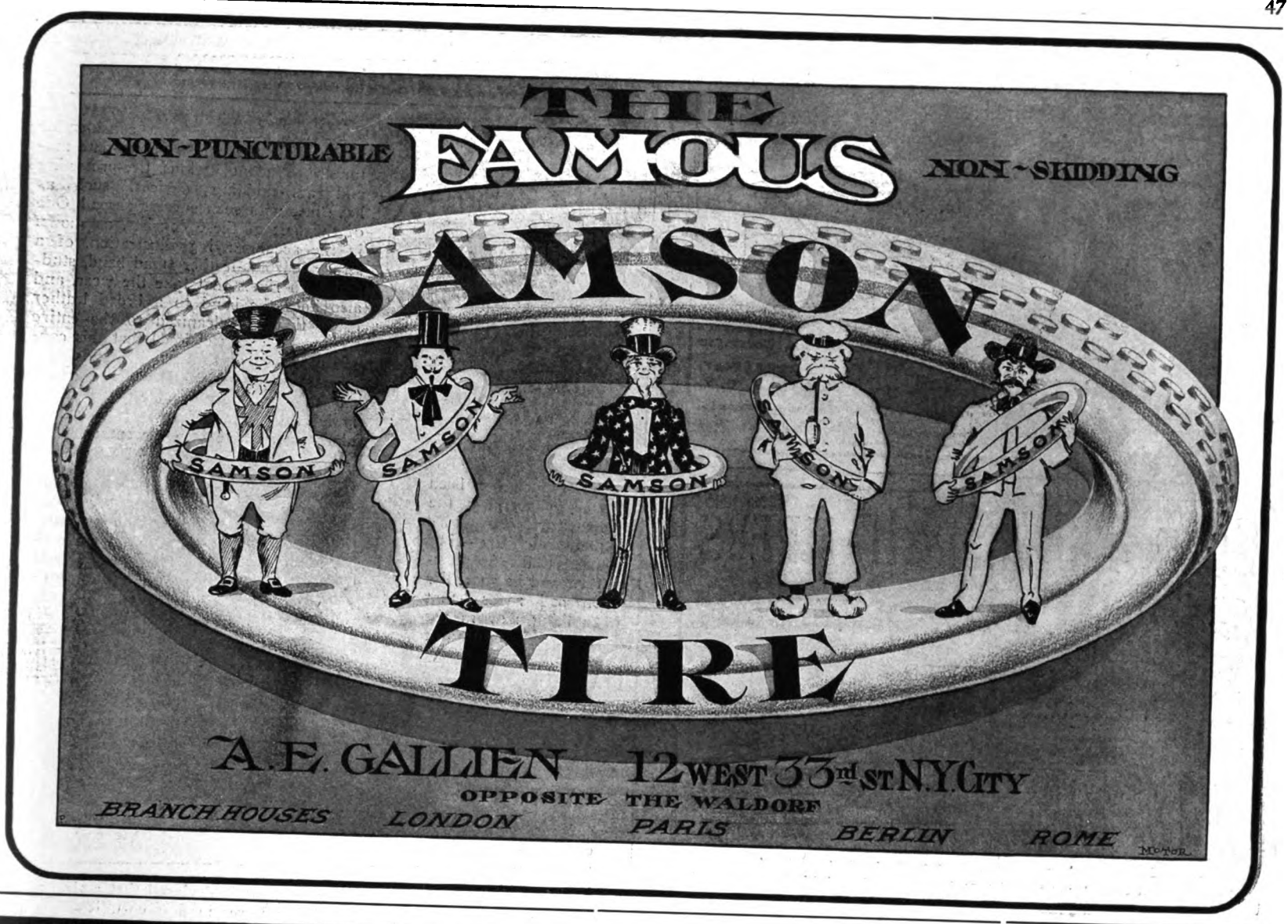
anything in their appearance that would indicate their primary purpose to be that of facilitating traffic.

With common roads built like railroads, as they should be built—roads like the magnificent highways of Continental Europe—a transcontinental trip in the engine-driven vehicle that is subservient to the will of the individual, and is tied to no rails of steel, will become an easy fortnight's jaunt for the increasing numbers who will care to take it.

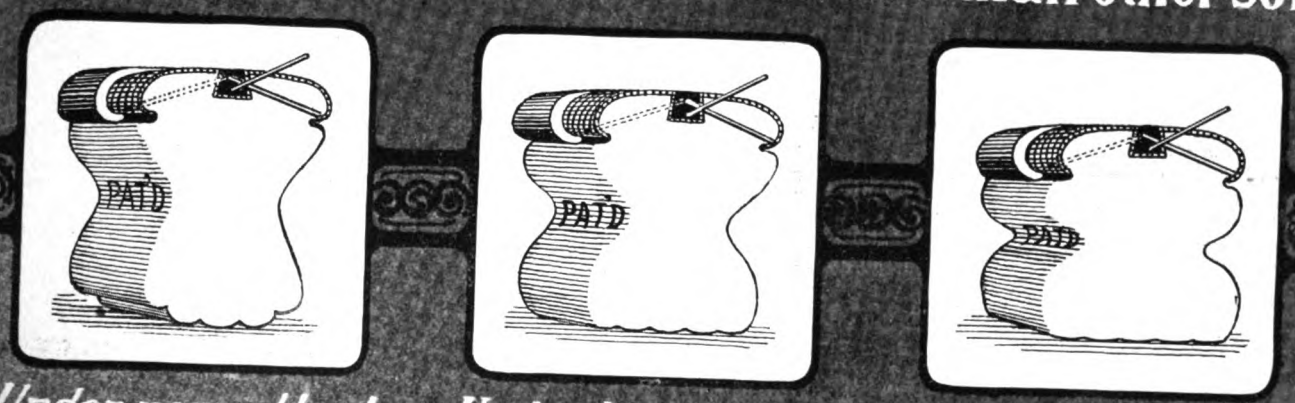


MRS. JAMES BROWN POTTER IN AN OLDSMOBILE AT HER COUNTRY PLACE, NEAR LONDON

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The tire is adapted to all makes of Standard Clincher rims, necessitating no changing of the rims; does away with the cumbersome, heavy, standard, solid-tire channel which, with its great weight, acts as a sledge-hammer to destroy the tire as well as causing extra hard jarring to the machine; its scientific design allows the greatest resiliency; being solid, it is immune from the faults of the pneumatic and is compounded and cured with a view of adapting it to any load to be carried. In ordering tires always specify the load to be carried on both rear and front axles and secure the benefit of watchful care in selecting tires which are adapted to the particular load to be carried. All tires are tested for their carrying capacity before being applied. *Write for prices and testimonials from users of the same car as you drive—we have some convincing ones.*

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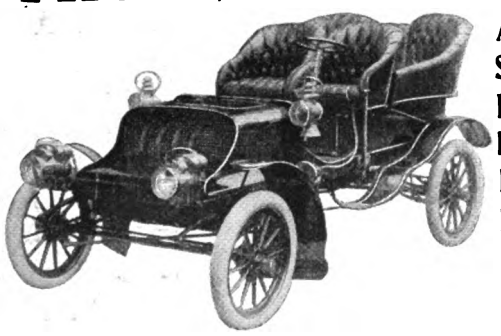


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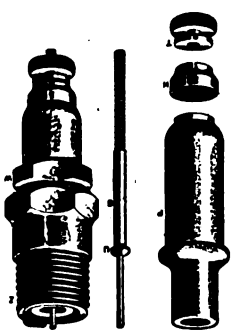
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You'll miss no end of miles by using unreliable spark plugs. Stick to

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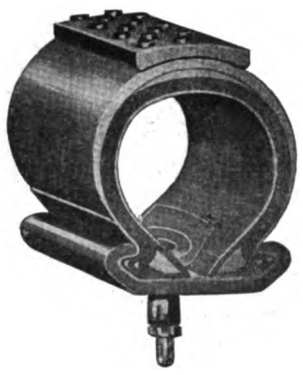
and you'll never miss a fraction of a mile because they never miss fire.

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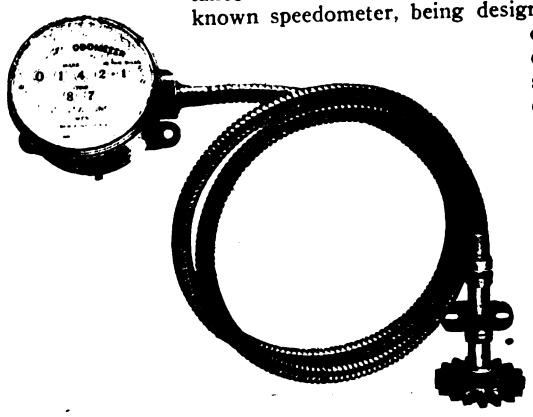
NEW AND INTERESTING



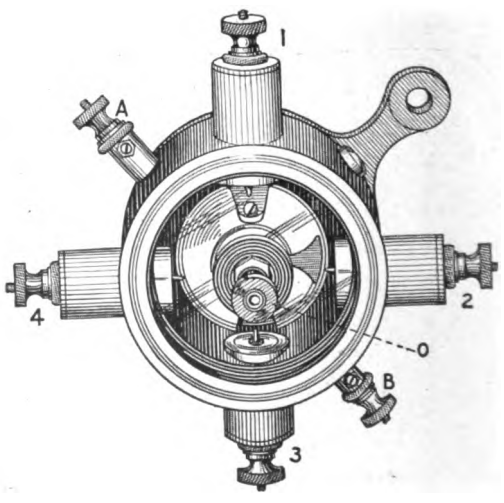
There appears to be a considerable tendency on the part of up-to-date motorists to adopt various tire-protecting and anti-skidding devices, such as have met with such success abroad. One of the best of these consists, as shown in the accompanying illustration, of a strong, chrome-leather tread band, studded with rivets that take the wear, and also hold the band to a broad leather cover that is vulcanized to the entire tire casing. It is claimed that this construction successfully withstands the stresses of high speed, is puncture proof, and so exceedingly durable that it largely increases tire mileage. It is particularly serviceable in wet weather.



So much has been said concerning the deficiencies of the pneumatic tire—its susceptibility to puncture, and its short life on bad roads—that anything new in the tire field is assured of the interest of many motorists. The tire shown in the accompanying cut is the latest product of a New York concern. In this tire the form is ideally simple, the cushioning effect being secured by the simple expedient of piercing a series of round holes sidewise through the rubber, between the tread and the rim. It is declared that a tire constructed in this manner, besides being lower in first cost, is quite as comfortable as the pneumatic, except for very high speeds.

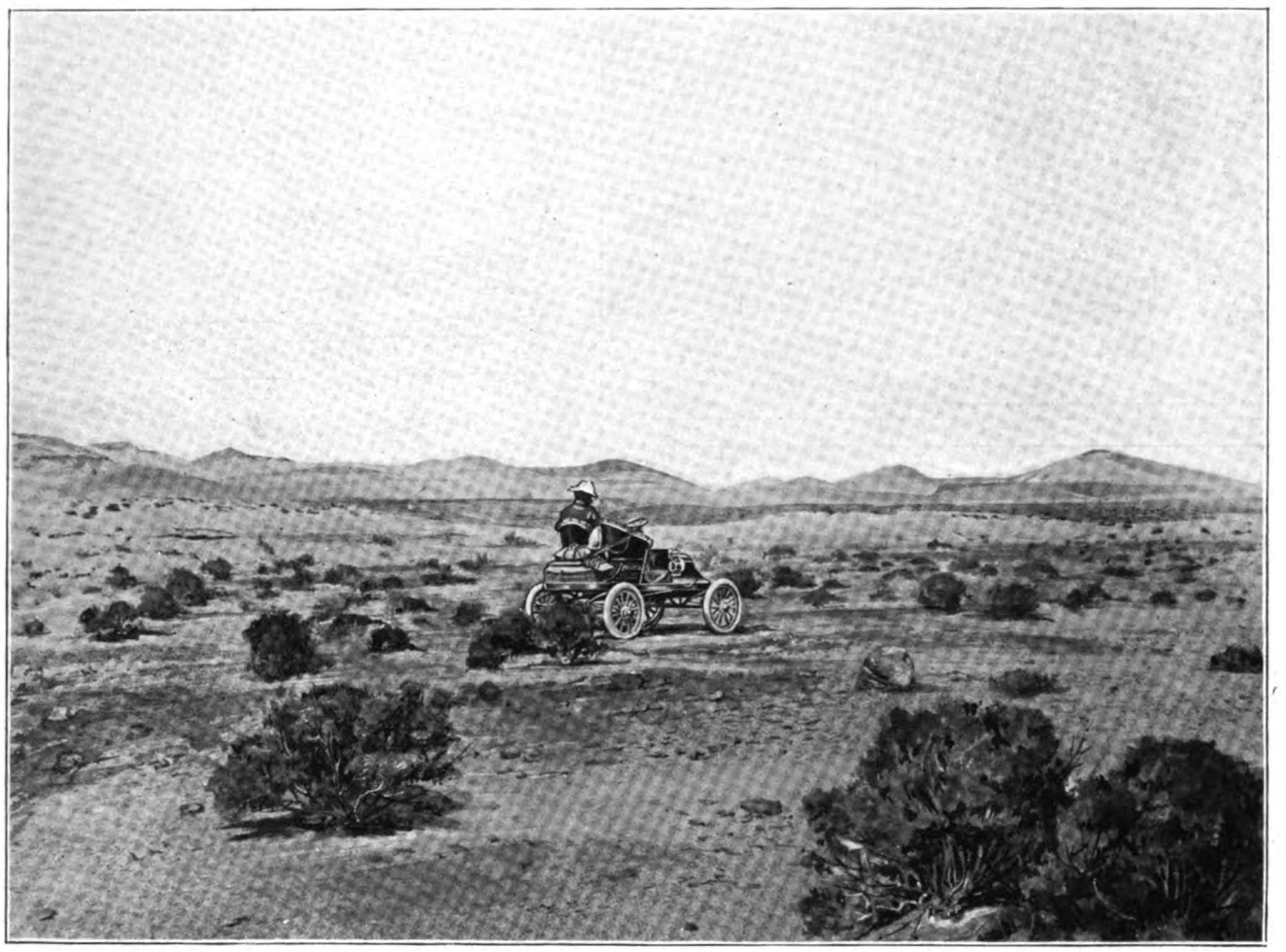


The latest thing in the way of odometers, or distance indicators, is similar in appearance to the well-known speedometer, being designed to attach to the dashboard, and driven by a flexible shaft, geared to one of the front wheels. Total mileage is shown by tenths of a mile up to 9999.9 miles, after which the instrument repeats. There also is provision for recording the mileage of individual trips which, up to and including 99 miles, are separately recorded.



A very interesting improvement in ignition devices has been brought out by a New York manufacturer. This device distributes the current from one spark coil and one source of current—a dry battery, storage battery, or dynamo—to the plugs of a four-cylinder engine, the primary circuit being broken at the proper moments, and a spark gap introduced into the secondary circuit of whichever plug may be firing at a given moment. The primary circuit is connected without grounding, through A and B. The secondary is connected at O, and runs from the four binding posts—1, 2, 3 and 4—to the plugs.

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(*From a photograph.*)

Air-Cooling on the Desert

The *Franklin's* great record-splitting run from ocean to ocean in 33 days, 28 days ahead of the best previous record, stands for a triumphant hill-climbing contest and a speed, endurance, and reliability test all in one. But probably the most significant point in the whole trip was the run from 'Frisco to Ogden in 10 days, cutting the best previous record (made by a water-cooled machine) exactly in halves, across the blazing sands of the Great American Desert, through the broiling, sizzling days in the fierce middle of August, without stop, break, or hitch.

We believe the *Franklin* has settled the air-cooling question forever.

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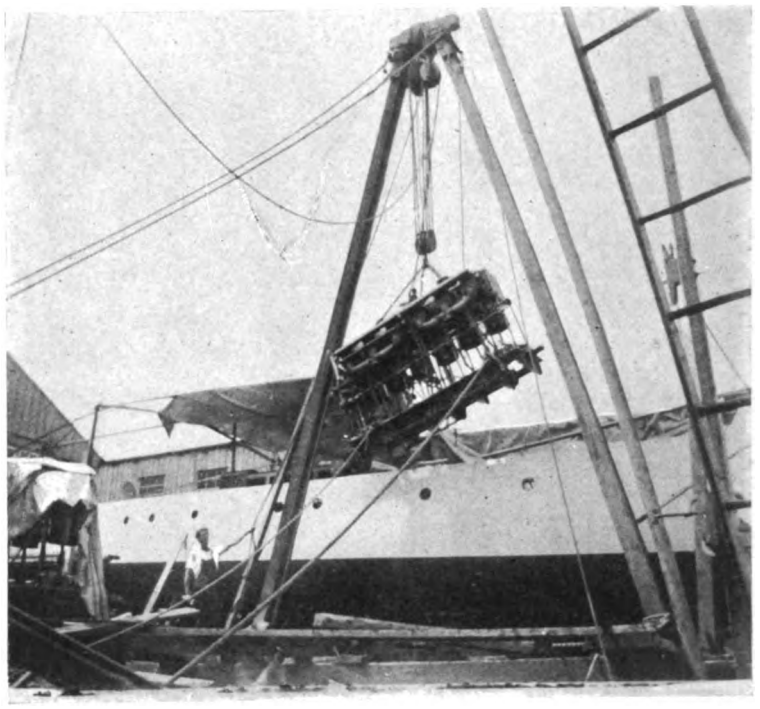
THE PARISH & BINGHAM CO.
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CLEVELAND

ABOUT RECENT MOTOR BOATS

By E. J. Williams

H. I. Pratt's new steel Gardiner & Cox production, named the *Dodger*, now finishing at the Wood's yard, City Island, N. Y., will be the highest powered motor boat to be launched up to the present time. This craft is 90 feet long and is being fitted with two 250-horsepower Standard engines, which, it is claimed, developed 370 brake horsepower during the test.

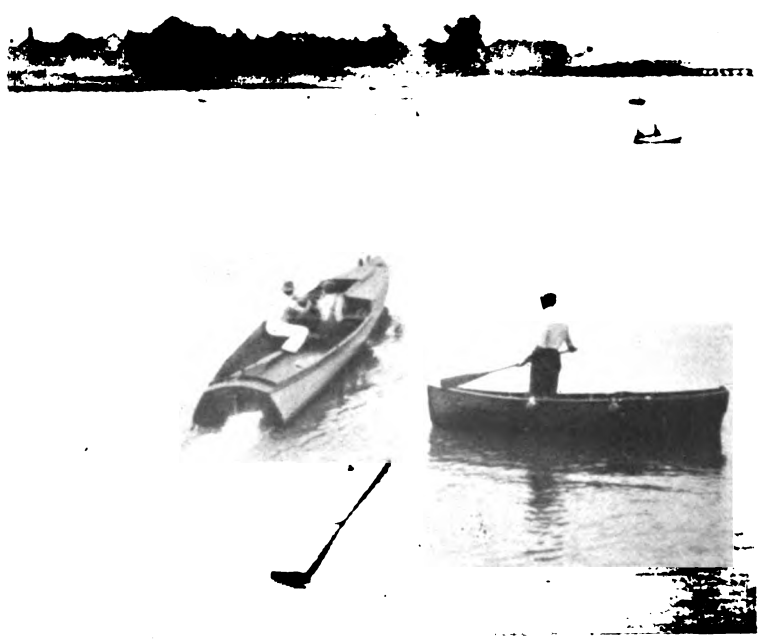
Another interesting gasoline motor boat is the new 60-foot *Weent*,



A 250-HORSEPOWER MOTOR BEING HOISTED ABOARD THE DODGER

also designed by Gardiner & Cox, and built in the Wood's yard. A 6-cylinder Standard motor, developing 110 horsepower, is expected to drive the craft at high speed, though purposes of pleasure and transportation are its prime objects. The hull is not of the regular torpedo type, but is somewhat similar to Mr. Gould's *Niagara IV*, and A. Marshall's *Levanter*.

A new motor boat, named *Rocket*, of the extreme dolphin type, has been launched from the yards of L. Huntington, at New Rochelle, N. Y., for L. A. Thompson. She is 30 feet water line, 4 feet beam, and



L. S. THOMPSON'S ROCKET ON A TRIAL TRIP

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A PREMIER CUSTOMER WRITES AS FOLLOWS:

On a recent road trip of 40 miles in my car one of the plugs on the end cylinder cracked and short-circuited. Finding that I had forgotten my extra plugs and that I could not repair the broken one, I removed it from the cylinder head and came home, the last 12 miles on three cylinders, in 34 minutes, and with apparently no effort on the engine's part, and the car running as smoothly as ever, except with a slight loss of power and speed.

Four cylinders are correct and economical on car, wearing parts and—last, but not least—passengers.

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Auto-talks No. 1

In this, our first "Auto-talk" to the readers of MOTOR, we do not intend to discuss speed, control or any of the technicalities of automobiling.

What we do want to talk about this time is *value*.

A sensible man doesn't want to pay any more for a thing than it is worth—he wants a thing to be worth all he pays for it.

He doesn't want to pay a big price just because the maker thinks he can get that price, and he doesn't want to be told that a machine is a *good machine*, when it is really only good for the money.

Naturally he asks: "Why cannot the automobile business be put upon a solid footing of *cost* and *worth?*

It was to answer this quistion that we started a great automobile plant eight years ago.

And to-day we offer to the public the **Autocar** —*an automobile that is built and sold on a commercial basis*—and the only one.

The Autocar is beyond the experimental, feeling-the-way stage.

It costs what it is worth—it's worth what it costs.

Every part from motor to minutest detail of mechanism is built upon lines that have been demonstrated by test and practice to be correct.

The Autocar has all the features of comfort, convenience and safety found in the highest priced cars. Every part is instantly accessible. It is built throughout in the best manner, of the best materials, and finished in the finest possible style.

The Autocar has a speed of from 3 to 35 miles an hour. Extreme ease of control is attained through an unusually simple arrangement of levers.

The price of the Autocar touring car shown above is $1,700—the Autocar runabout $900.

In our next month's talk we will give you more details of the Autocar's construction and performance. In the meantime we ask you to send for our booklet, in which are found addresses of our dealers throughout the country. There is one near you.

One thing is certain, you cannot afford to buy an automobile without investigating the Autocar.

THE AUTOCAR COMPANY,
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¶ This popularity came about through the *wonderful performances* on the road and track.

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THERE are many ***good*** automobile lamps on the market; there are many better than merely good; but there can be only one best lamp, and there ***is*** only one.

The ***best lamp*** means that lamp which has, in the highest degree, quality, finish, durability, and style.

Some lamps have quality only; some have finish only; some have durability only; but there is only one which has all three, together with that sightliness and beauty of form which we call ***style.*** That lamp is the

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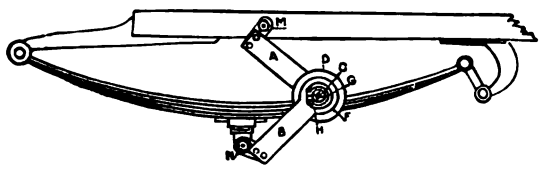


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At Ostend, July 18, 1904, Baras in an 80 H.P. Darracq was enabled with the TRUFFAULT-HARTFORD-SUSPENSION to reduce the world's automobile record for a mile by five seconds from a standing start, making the distance in 48 3-5 seconds, travelling the last half-mile at the unheard-of speed of 103 miles an hour.

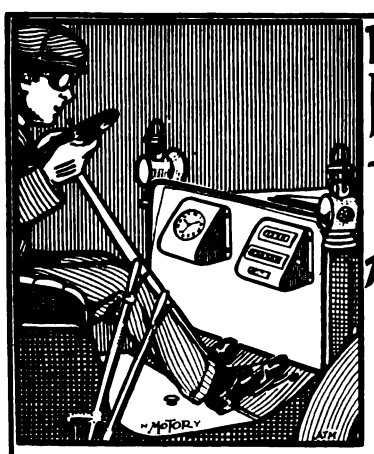
No automobile can afford to be without this marvelous SHOCK ABSORBER. Roads ordinarily impassable seem like macadam.

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J. D. PRATT'S WEENT, A 60-FOOTER OF 110-HORSEPOWER

equipped with a 24-horsepower Standard motor. The cockpit is roomy and the forward deck is raised, cabin form, to accommodate the motor. The engine is started by a crank from the cockpit alongside of the steering wheel, so that one person need not leave the wheel when starting. The sides of the hull are rounded and in appearance aft of amidships resembles C. D. Mower's *Express.* A remarkable speed has thus far been attained, but to give an estimate might only cause criticism as to the owner's mile posts, so he prefers to leave it to the *Rocket's* future racing conduct.

During the *Mercedes IV* trials on the Sound at City Island, handicapped by a small propeller, a speed was attained far in excess of the fondest hopes of W. K. Vanderbilt, Jr. Her performance over a measured course showed the proper selection of hull and equipment, consistent with speed and safety. The *Mercedes IV* is 40 feet long, of rather narrow beam, the complete outfit weighing about 1,400 pounds. The hull is single planking, lap strake, the bow raking slightly, the stern diverging to a sharp point. The forehead and after decks are of thin aluminum plates, the motor being situated under a hood raised above the deck proper, fitted with slides of the same metal, to be drawn while racing. A small seat not unlike the ones used on racing motor cars is situated forward of the rear deck, in front of this being the Auto steering wheel. Owing to Mr. Vanderbilt's conservative manner, he would not predict her speed, confidently awaiting the September events of the American Power Boat Association.



A POPE-TOLEDO HILL-CLIMB WINNER AT MINNEAPOLIS

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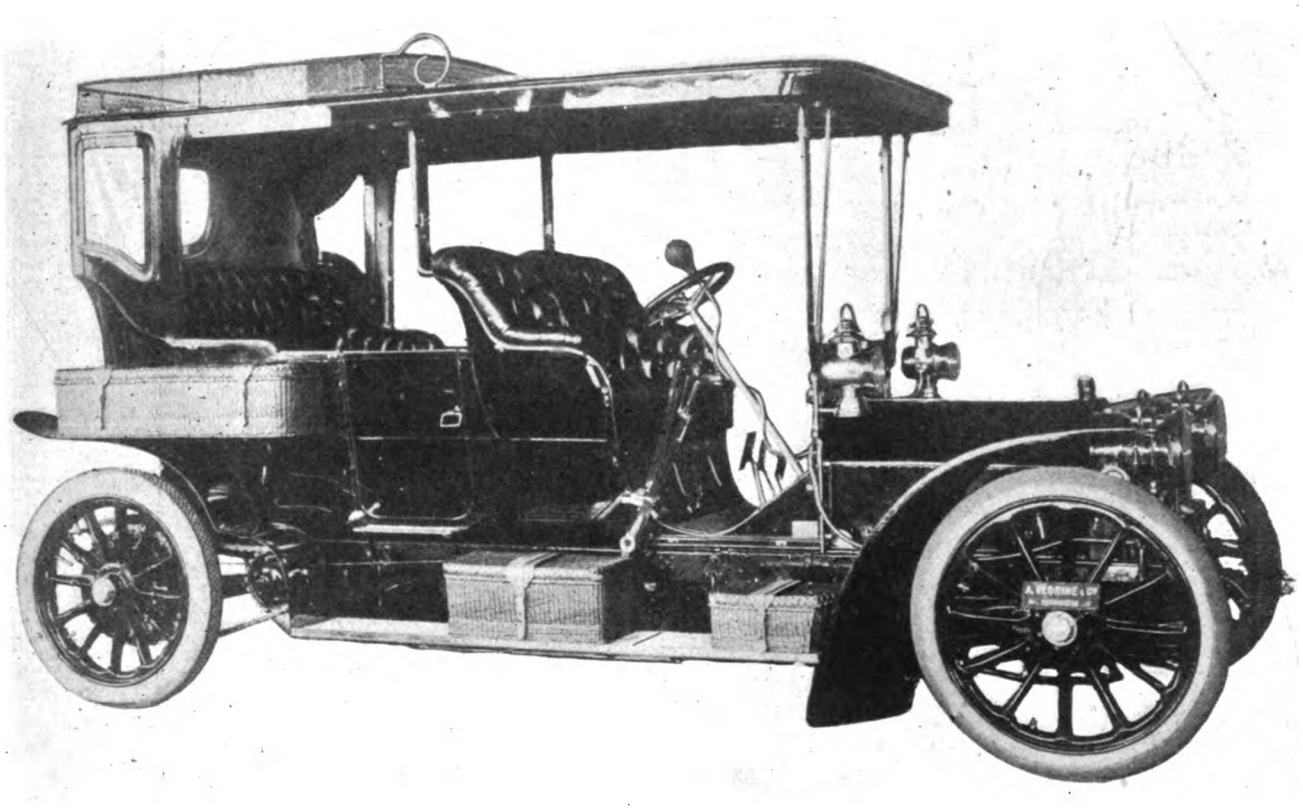
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Serviceable Liveries in new and approved designs for Road Cars.

English Luncheon Baskets

Catalogue, containing over 150 illustrations, with prices, mailed on request.

How the Ignition is Effected

(Continued from page 40.)

even less conductive (of higher resistance) than is air at atmospheric pressure. Therefore, it is necessary, in jump-spark systems, to have a current of much higher voltage than it is practicable to obtain from the ordinary dynamo or battery. To produce such a high voltage, an *induction coil* is used. An induction coil is diagrammed at *b*, Fig. 35, and consists simply of two windings of insulated wire, one, indicated by the heavy lines, forming part of the primary circuit from the battery or dynamo at *a;* and the other, shown by the light lines, and wound over the first, forming part of the secondary circuit, in which the spark plug *e* is connected. The effect of an induction coil thus situated is to produce a sudden surge of current of very high voltage through the secondary circuit, whenever the primary circuit is made or broken, as by the contact breaker *d*. The induced current in the secondary circuit thus jumps the gap very easily, causing a spark of ample strength to effect ignition. The very facility with which it jumps this gap, however, requires the most perfect insulation throughout the secondary circuit; otherwise the current will leak.

Magnetic-plug ignition systems are generally of substantially the type illustrated in Fig. 36, in which the plug consists of the fixed electrode *a*, the movable electrode *b*, and the magnet *c*, which, when energized, moves *b*. The wires of the circuit *dd*, and the source of current *e* complete the system, except that a contact breaker *f* is necessary.

Timing ignition is necessary in all systems for two reasons. It is evident the ignition must occur absolutely at stated intervals in the cylinder of an engine—once in every other stroke in a two-cycle engine, and once in every fourth stroke in a four-cycle engine. The other reason is less apparent, but will be readily grasped when it is considered that an appreciable time is required for ignition once under way in a charge to result in complete combustion. This being the case, and the power stroke of an engine occupying a greater or less time according to the speed at which the motor is running, it becomes clear that if ignition always were to be effected at a fixed point in the stroke, combustion might sometimes be completed before the stroke were completed, and at other times delayed until after its completion. Consequently, the highest efficiency of an engine is only to be attained by producing ignition earlier in the stroke when the engine is running fast than when it is running slow. This *advancing* and *retarding* of ignition may be effected either by pedal or manual control at the will of the operator, or automatically by a centrifugal governor.

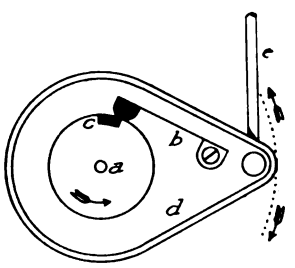
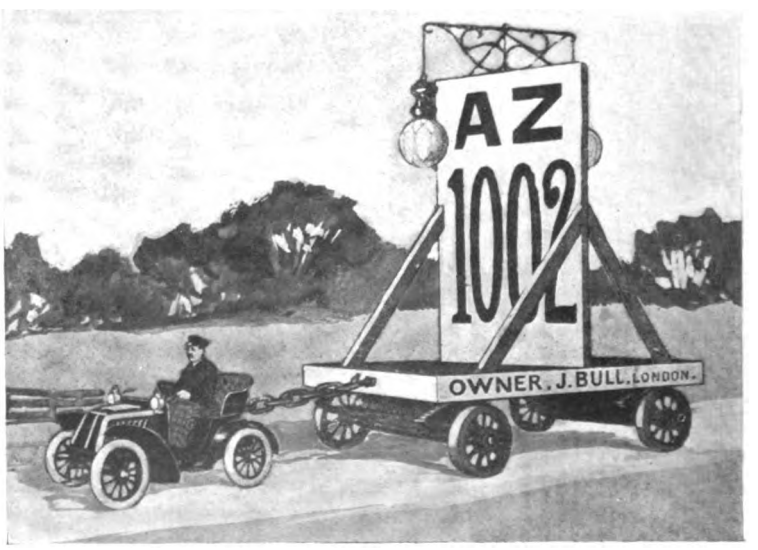


Fig. 39.—Timing Device

A typical timing device is shown in detail in Fig. 39, in which *a* is a rotating shaft connected to some part of the engine, usually to the engine mainshaft or to a camshaft that actuates the valves; *b* is a spring making contact with the contact point *c*, on the shaft *a;* and *d* is a support on which the spring *b* is mounted, the whole being so arranged that by means of the rod *e*, connected to a control lever or a governor, the block may be moved in either direction as indicated by the arrows. It is evident that such a movement will cause the contact of *b* with the contact point *c* to occur at an earlier or later period in the rotation of *a*, thus making and breaking the circuit at a time varied in accordance with the speed of the motor.

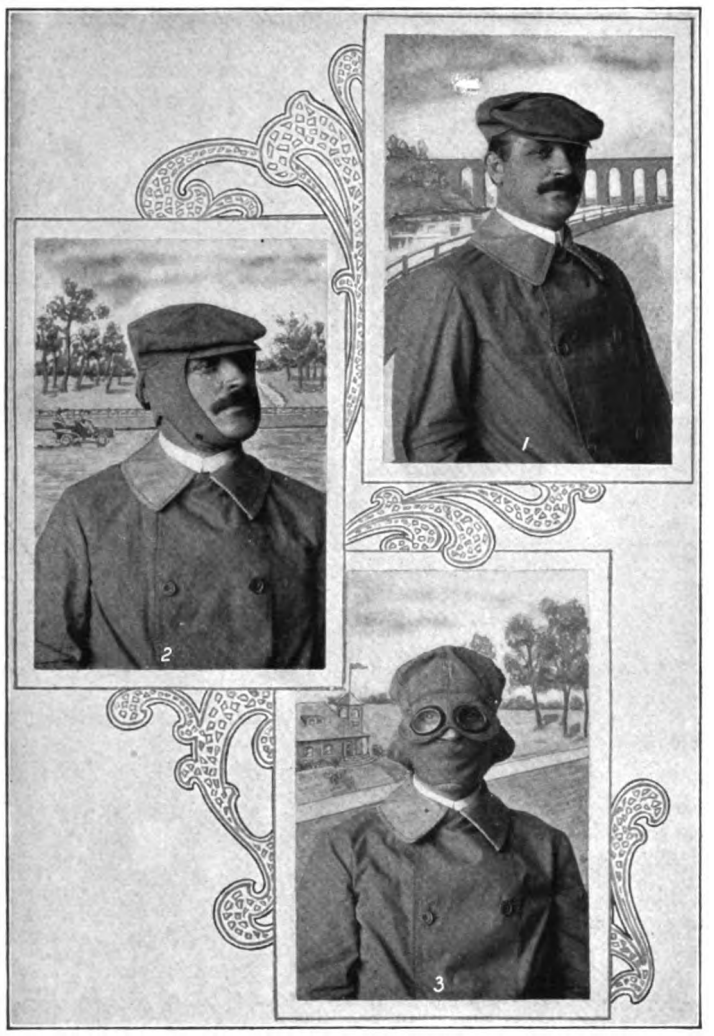
For multi-cylinder engines, a *distributor* is necessary to regulate the occurrence of the ignition in the different cylinders in proper succession. A distributor often combines with its distributing function, that of timing. Such a distributor is illustrated in Fig. 40, in which *a*, *b*, *c*, and *d* are contact springs similar to *b* in Fig. 39, but in this case each connected with one of the spark plugs in a four-cylinder engine. The contact plate *e*, inlaid in the insulating ring *f*, surrounding the shaft *g*, actuates the four springs in succession, producing corresponding sparks



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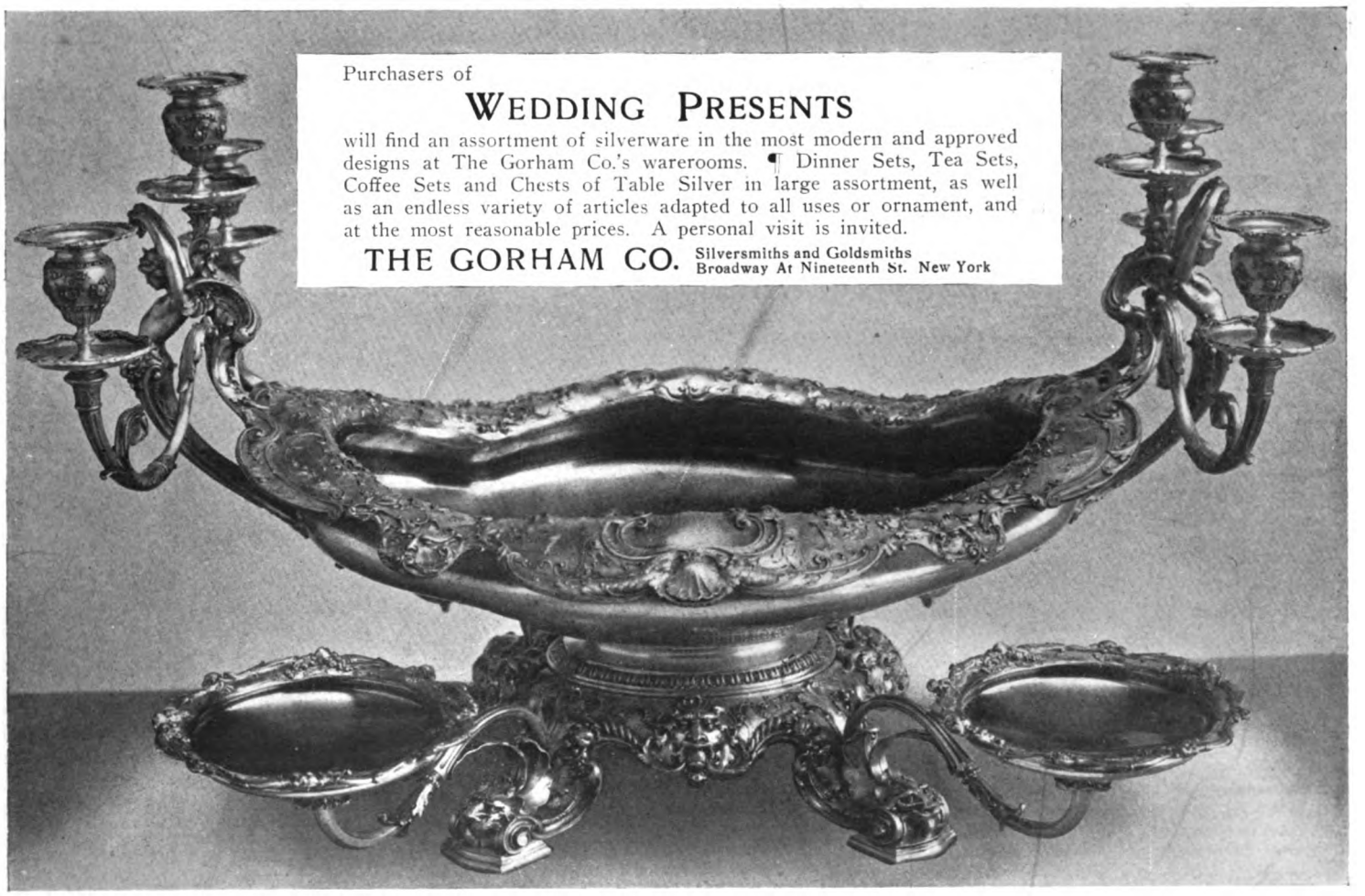
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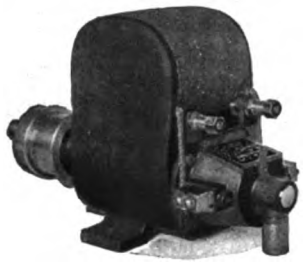
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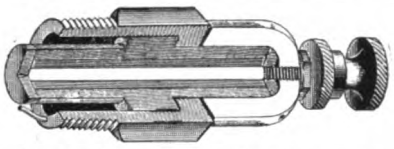
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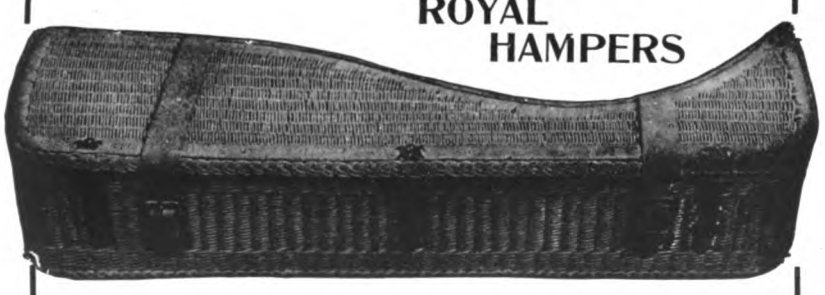
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in the different cylinders. Advancing and retarding of the ignition is brought about by rotating the whole casing *h*, carrying the contact springs, in either direction indicated by the arrows, thus causing all the springs to make contact earlier or later, as may be required.

As one short spark is not always sufficient to insure ignition, many systems provide for a stream of sparks instead of a single one at the moment of contact. To produce such a stream, what is known as a trembler is required. A trembler usually is affixed to one end of a spark coil, as shown in Fig. 41, in which *a* is the trembler, consisting simply of a flat steel spring, arranged to be attracted to the bundle of iron wires *b*, in the center of the induction coil *c*, when this bundle is magnetized by the current passing through the coil. When the trembler spring thus moves, it breaks the contact at *d*. This stops the flow of current through the coil, the magnet *b* loses its energy and the tension of the coil spring *e* causes *a* to fly back. This again completing the circuit at *d*, the current again flows through the coil and the trembler is attracted as before. All this occurs very rapidly, producing a buzzing of the trembler similar to that of the clapper of an electric bell, and with every movement of the trembler, as long as the main contact in the circuit is kept closed by the timing device or distributor, a spark passes between the contact points of the spark plugs. The stream of sparks thus set up produces very certain and reliable ignition.

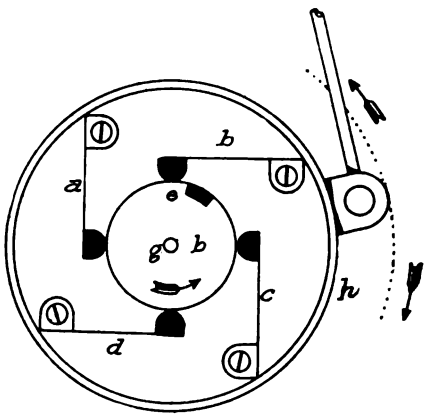


Fig. 40.—Device for Distributing and Timing Ignition in Four Cylinders

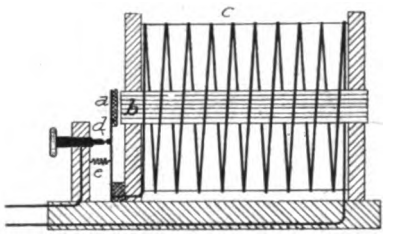


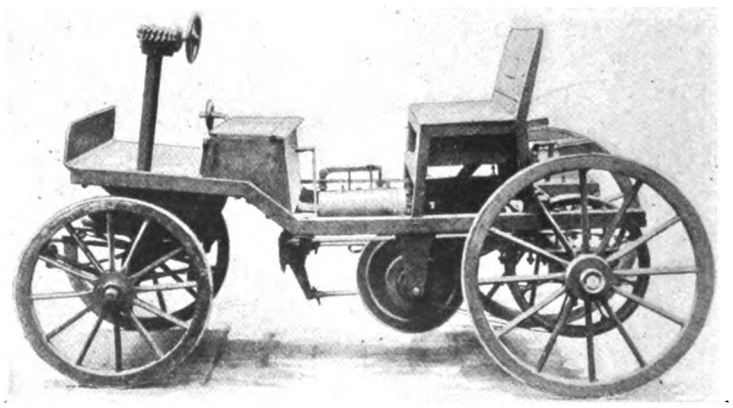
Fig. 41.—Spark Coil with Trembler

There are, of course, ignition systems in which much more complex arrangements than any herein described are employed, but all depend upon the same general principles, and an understanding of one will, to a great extent, explain all.

The next lesson will treat of "Transmissions."

OLDER THAN THE SELDEN PATENT.

A vehicle that is said to be in every important respect an anticipation of the Selden patent is that illustrated herewith. The machine was built in 1873 by N. Siegfried Marcus, a Viennese mechanic, who died in 1898. The machine was exhibited at the Vienna Exposition in 1873 and on that occasion formed the subject of an elaborate report by M. J. Radinger, professor at the Vienna Polytechnic School. Besides being an anticipation of the Selden, the machine embodies a surprising



AN AUTOMOBILE BUILT IN 1873

number of interesting details, which have since become recognized practice. The drive from the engine is by belt to a pully wheel on the rear axle, and ratchet hubs are used in place of a differential, but the frame is armored wood, and steering is by a worm and worm wheel, operating, however, upon a moveable front axle. The vehicle is still in an excellent state of preservation and is owned by the Automobile Club of Austria. Speed regulation is provided for, as in the best modern machines, by a throttle working on the mixture.

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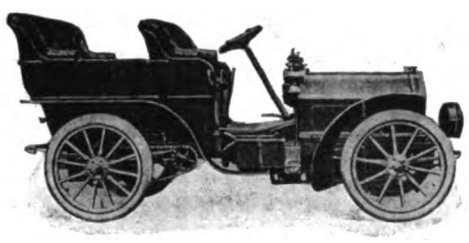
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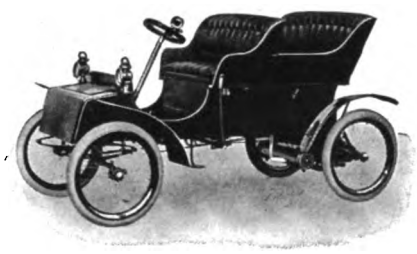
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(*Continued from page 25.*)

turns with the boulevard (the way is unmistakable), passing en route the factories of the Acme White Lead Works and the Packard Motor Car Company, one will come into Gratiot avenue, doubly laid with street car tracks. It is not so well paved as the boulevard, but it is fair driving, more like the average suburban road.

The same Gratiot avenue is the direct air line through to Mt. Clemens, and is possibly the longest thoroughfare in the United States, a distinction claimed, however, for many highways. This one runs virtually from Detroit to Port Huron, Mich., through Mt. Clemens, and was laid out and graded in 1840 by the Federal Government as a military road to connect the forts at both ends of the line. That was before there were any railroads in the Northwest, and a good, straight highway had a military importance since largely lost. The total length of this road is about sixty miles, most of the way built straight as an arrow. In each of the terminal cities, as well as in Mt. Clemens, it bears the same name, and is everywhere considered the leading and most attractive thoroughfare.

It runs past quaint farmhouses, half hidden in groves of stately trees; by picturesque roadhouses that have ministered to the needs of the wayfarer since the days when Abraham Lincoln issued his famous call for troops and the farmer boys of Michigan marched down to the city to enlist; by the side of rural cemeteries, where the marble headstones bear evidence of the harvest of the grim reaper; through orchards and fields of waving grain; past gardens where, in springtime, the branches of the lilac bushes bend beneath their loads of purple decorations, finding its way into Mt. Clemens through a vista of magnificent maples.

So much is a short run—not much over twenty miles—taking in the neighborhood of an hour, over a road which, while it would not do to race over while carrying eggs to market, is better than the average country thoroughfare in the Middle West. What roughness there is comes from uneven surfaces rather than from grades or obstructions. Over the double lines of car track all the way the interurban trolleys pass and repass often, and at high speed. We were informed that something like a hundred loads of hay go into the city every morning over this highway, and in case the motorist happens to encounter a number of sociable farmers who insist upon driving side by side in pairs of two or more, it will generally be found that the street car track is, temporarily at least, a useful expedient.

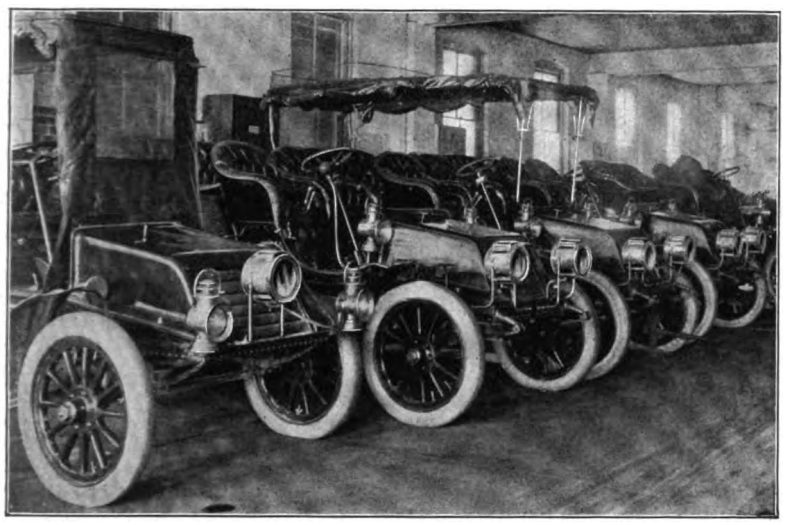
Never once on this little trip are you out of beaten paths. The short distance traveled on the up-course takes you through several different small places, comprising altogether a considerable suburban population. The country is fairly well built up all the way, and while very little travel ever passes between terminal points, there is nowhere anything to suggest a section "going to ruin." On the other hand, there is a progressive air about everything, whether homes, farms, or gardens. At Conner's Creek, five and a half miles out, is the first hill and the only one of any size on the route. At the summit is the Conner's Creek Roadhouse, which has stood for a generation or more. Another half mile above is the Six-Mile House, and just beyond that the clubhouse of the Westphalia Shooting Club. There are some exquisite bits of scenery along this portion of the way, worth a stop to one with time and so inclined. The Grosse Point Roadhouse, a short ride farther along, is the favorite resort of the old inhabitants of the township, and the "pikers" of the Gratiot road.

You will be reminded that this is a toll road by the familiar type of toll houses. Though it is doubtful if a strict interpretation of the charter would allow it, fifteen cents is collected at two different places each way. Strangers inclined to pass through without stopping will be called back by the keeper in no uncertain tones. Roseville, a sleepy little place, whose most conspicuous features are an old church and cemetery, is about half way to Mt. Clemens. Fifteen miles from Detroit—before you are aware—is the last regular old-time landmark on the road—the Five-Mile House, reckoning now from Mt. Clemens. The last five miles is almost perfect riding; the way is clear and speed justifiable, while the scenery is ideal. As the party of tourists spins over the Clinton River bridge into the resort city, he finds that the promise of a good and interesting short round trip has certainly been fulfilled. And he borrows little or no trouble about the return half.

Mt. Clemens is beautifully situated on gently rolling or nearly level land at the head of navigation on the Clinton River. This pretty stream circles through and around part of the city, adding to its attractiveness and advantages as a resort, as well as aiding its commercial and shipping interests. Approached from below, the land on which Mt. Clemens is situated seems to be perfectly level, but in making the trip by water—an interesting motor boat possibility—the land seems to rise very gradually as you ascend the river from water level at Lake St. Clair until it attains the height of about 100 feet at the highest point, which is at the Court House. The city's shaded streets, lined with elegant residences of prosperous citizens, and the cozy cottages of the working classes, combine to make it a desirable place of residence as well as an exceedingly pleasant place to visit.

The resort city has a population of 7,000 or 8,000, and owes its present reputation to the medicinal virtues of its mineral waters and the efficacy of its thermal baths. The various waters are secured by drilling wells from 800 to 1,300 feet deep. The first well was drilled in 1865 by a company organized for the purpose of prospecting for oil, suggested, no doubt, by the presence of abundant oil in that section of Ontario (Canada) opposite Lake St. Clair. After drilling

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HOW THEY DID LAUGH

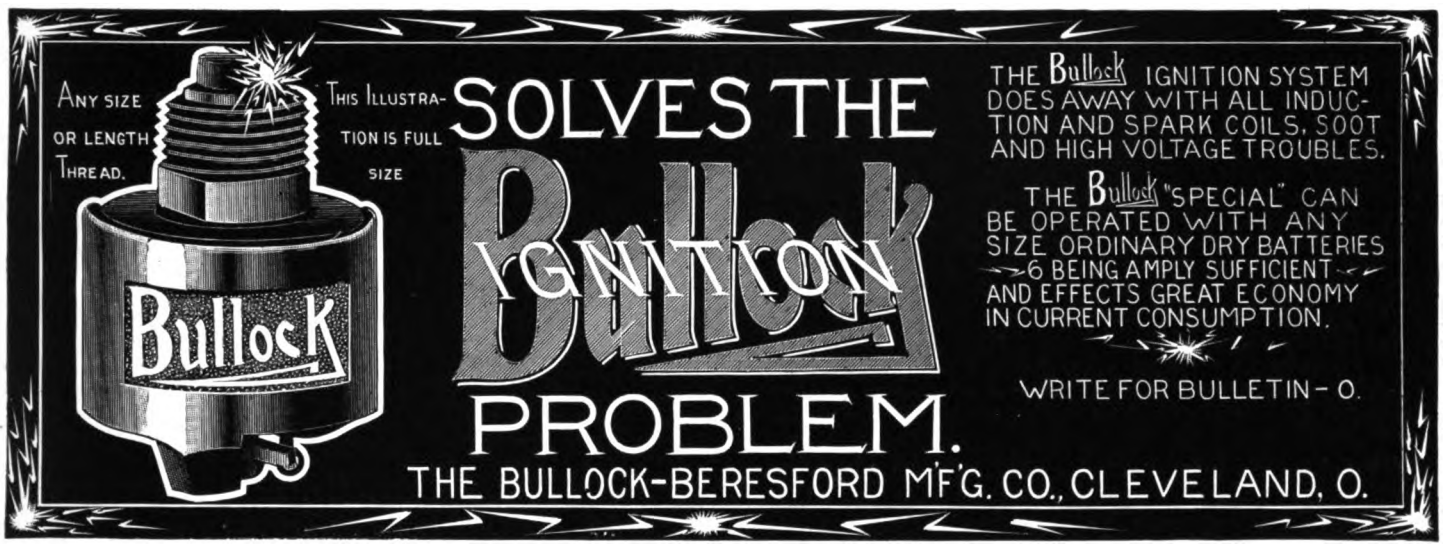
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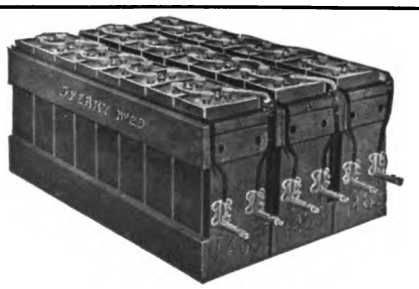
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some 1,300 feet they abandoned all hope of securing oil, but ascertained that the water of the wells was rich in salt. After some delay a new company was organized to commence the preparation of the salt in large quantities, but the promoters were never able to make a commercial success of it. Fortunately, the curative properties of the waters were discovered while the manufacture of salt was in process; and on this discovery turned the fate of the place.

There was a time in the early history of Mt. Clemens when it was the most important settlement in that part of the then-Territory of Michigan, not excepting the rival, Detroit. The cooperage business, always an important industry in that section, was then at its height. Staves and heads for oil casks and barrels for the whaling firms of New Bedford and Gloucester, Massachusetts, were made at Mt. Clemens and shipped to those old seaports on the Atlantic. It was then thought that the future prospects for the place were far ahead of those of Detroit. But with the decay of the whaling business and the growing scarcity of timber, the cooperage trade declined and the place began to retrograde, only to revive on a greater scale and in a more permanent form with the proved value of its mineral waters.

Parties going no farther than Mt. Clemens have plenty of time to look about. They may even change from land travel to water travel, and make excursions down the Clinton River to Lake St. Clair, visiting en route the various clubhouses and islands near the Government works on the St. Clair "Flats." The water trip is a most enjoyable one, a pleasant contrast with motoring on wheels, especially since the cool lake breezes make things comfortable even in the warmest summer weather, while the roads have probably been hot and dusty. The distance to the lake is only seven miles, and then twelve more will take a party across a portion of the very beautiful Lake St. Clair to Star Island, the usual destination when traveling in that direction. This island is situated in the St. Clair River a short distance above the Government jetties on the St. Clair Flats, on land "made" from the sand secured in the process of dredging the river.

Even if you do not change from motor car to motor boat or sailboat, you are all the while conscious of being in touch with the vast and picturesque commerce of the Great Lakes, the most of which passes through this grand series of arteries from Lakes Superior, Michigan and Huron into Erie and Ontario, or vice versa.

The St. Clair "Flats," or, as they are often called, the "Venice of America," are built on piles, with hundreds of summer homes and thousands of people who are content to have only one street, and that the St. Clair River itself. For miles this constant succession of cottages and clubhouses, gaily painted, with broad verandas, many of which are built on stilts or piles (allowing the water to flow under their floors as well as past their doors), affords a constant panorama. At few times during the day while navigation is open are there less than a dozen different-style craft in sight at almost any point of vantage from Lake Erie to Lake Huron. And not only their main connecting links, the Detroit and St. Clair rivers, but tributary streams like the Clinton River at Mt. Clemens and the Black River at Port Huron, complete the half-water, half-land picture and add to the never ending variety. Private yachts, motor boats, and fishing craft, coal and ore barges, and occasionally great passenger steamers such as the *Northwest* and the *Northland,* are going up and coming down, following their separate missions the whole summer through.

Port Huron is about forty miles above Mt. Clemens, and the motor car trip may be extended to that point if desired over the self-same Gratiot avenue, the old military road already referred to. However, as a glance at the map will show, this road does not follow the waterfront all the way, but strikes out boldly for Port Huron. The riding is not

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THE 1905 MODEL C

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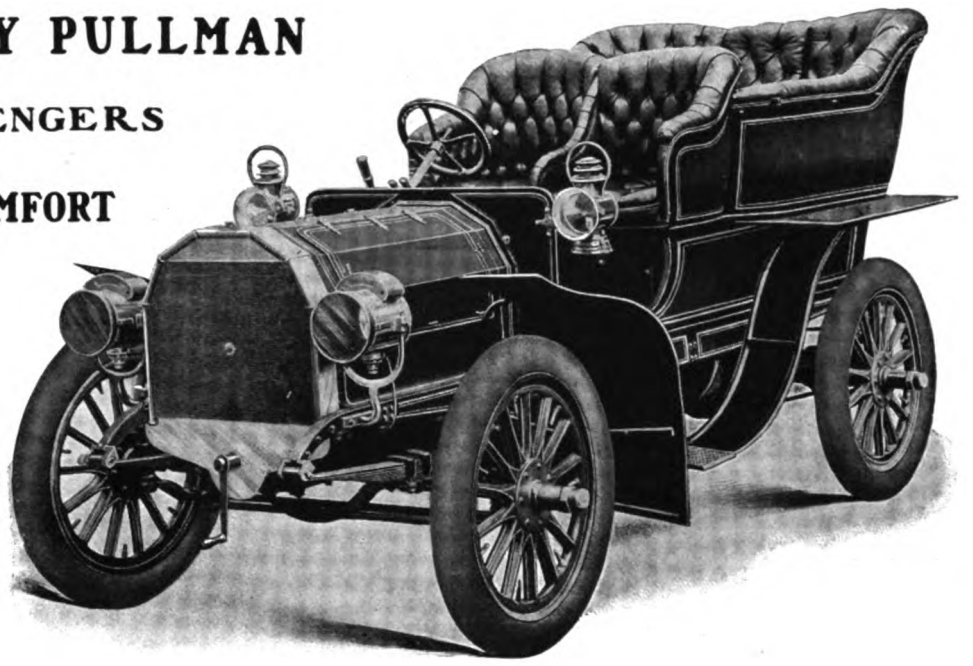
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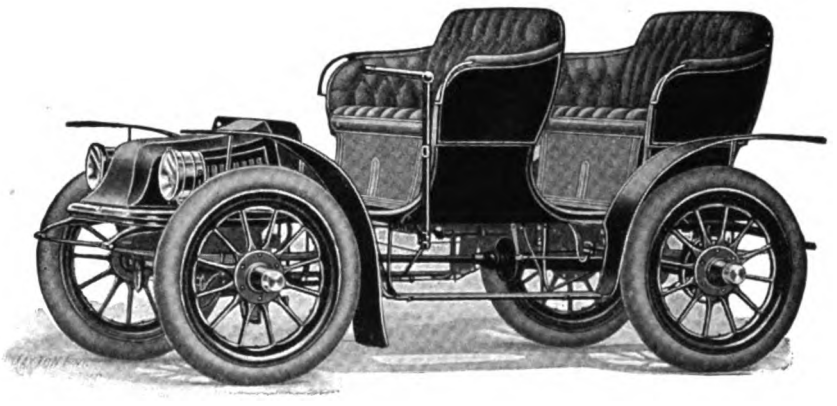
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Weight, with Passenger Load, 2200 Pounds
Motor, 2 1-4 H.P.
Battery Equipment, 24 Cells

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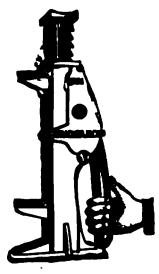
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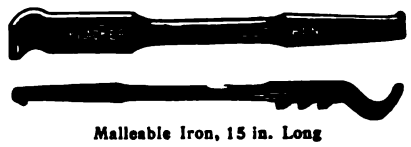
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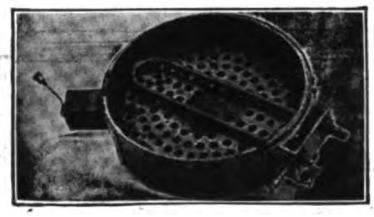
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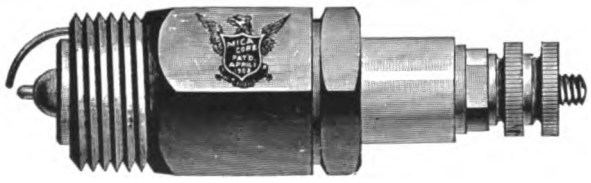
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so good above Mt. Clemens as it is below—since the object of the military road is no longer important—which leads many tourists to leave their motor cars at the resort city and take the swift trolleys of the Rapid Railway for the balance of the journey. This is now one of the longest and best electric lines in the United States, connecting Detroit and Port Huron via Mt. Clemens.

Adopting this easier and pleasant alternative, one is taken nearer the waterway than the highway can go, and has, moreover, the choice of one route going and another returning, one via Marine City and the other via Algonac. In either event you are brought into Port Huron over the last stage of the old military road, which now becomes a boulevard lined with some of the best and costliest residences on the entire route, giving the stranger some idea of the wealth of these minor lake ports. By either automobile or trolley express train you soon taste and feel the breath from off Lake Huron, a fullness that was absent along the Detroit River and on the shores of Lake St. Clair.

Special points of interest near Port Huron, worth a visit if one has time, are old Fort Gratiot and the newer Huronia Beach, both reached by the road along the lower side of the lake. The Black River flows through the center of the city, and is full of logs during the entire season of navigation. The big commercial vessels do not seem to mind their presence, no matter what their numbers, but it is easy to imagine that they would create havoc with motor boats and pleasure craft generally. In fact, the presence of timber in most of the waterways of the Northwest interferes seriously with their suitability for safe outing trips.

The best way to go back from Mt. Clemens to Detroit is by the same Gratiot avenue followed on the outward trip, but the opportunity to return via the Shore Road is well worth the slight extra mileage and the admittedly poorer roads encountered on the way. To begin with, you drive five miles or so over sandy country roads in the direction of Lake St. Clair, part of the way making fair progress, but most of the time bumping along discouragingly. Forty rods from the lake the road turns; it looks better riding but it isn't for a while. There are seven or eight miles of this poor going, after which there is a perceptible improvement; then for a few miles it is all that one could wish. The ride over this part of the route would be refreshing at any time, but it is especially so after a long stretch of sand and ruts.

From Grosse Point into Detroit the route—about which there is at no time any question—is past Belle Isle, the Detroit Driving Club grounds, and Lakeside. Over to the left you see the former, Detroit's famous island park, thought by many to be the handsomest in the world. Fifteen miles of watery streets pass through its meadows and woods and between little hills, threading a tortuous but interesting path. That would require a second section of our story. Another short stretch on Jefferson avenue to Woodward avenue, the principal thoroughfare of the city, and all but the memory of the excursion to and from Mt. Clemens is over.



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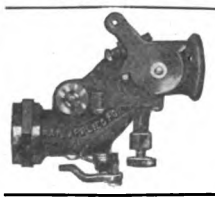
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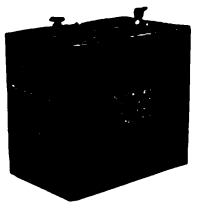


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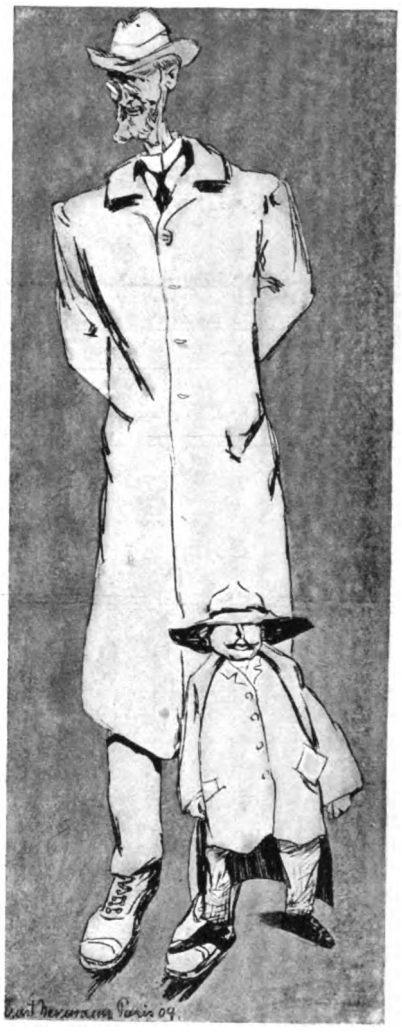
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THE AMERICAN FOREIGN REPRESENTATIVE

In motoring, foreign representatives are as necessary as in the conduct of State affairs, and the Automobile Club of America has a worthy and estimable spokesman in Clarence Gray Dinsmore, who receives his mail at a Paris address, though he is exceedingly continental in his habits and is likely to be found in any part of Europe where international motoring events are being held. Mr. Dinsmore,



of course, was at the Gordon Bennett Cup race, and also attended the Harmsworth trophy boat racing wherein the American *Challenger* looked like a winner in the early stages of the contest. Ernst Neumann, a well-known cartoonist of the other side, gives this pen picture of the A. C. of A. representative. Mr. Dinsmore's companion, Robert Katzenstein, is unknown to fame on this side, though he has attained considerable prominence as a team mate of the elongated American. In fact, the two are designated by *Das Schnauferl* as the "long and short of it." It is assured that as long as Mr. Dinsmore consents to serve as the A. C. of A. delegate abroad, there will be no short applicants for his place, and, even if there were, the chances of success would hardly be worth mentioning. Mr. Dinsmore is now in this country for the Vanderbilt Cup race.



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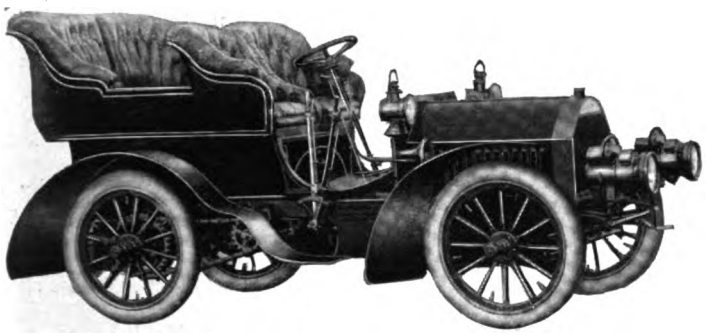
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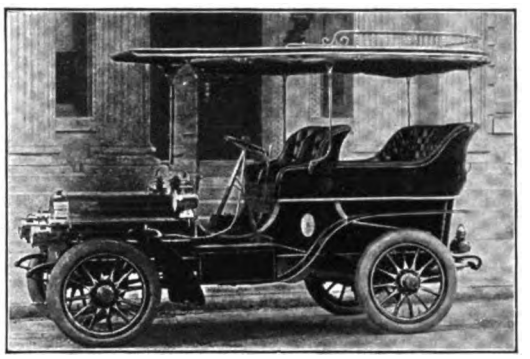
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When the Carbureter Balks

(Continued from page 13.)

if anything even simpler to care for, as they lack the complication introduced by the float and attendant devices.

Many motorists make the mistake of thinking that the carbureter is all right as long as it provides a mixture on which the engine will run. This is not at all the case. A mixture very weak, but still explosive, will cause the engine to develope much less than its rated power. Too strong a mixture also will cut down the power output, at the same time sooting the cylinder and exhaust passages, and developing great heat, unduly taxing the cooling system and perhaps injuring the motor.

Mixtures verging on non-explosiveness, either through an excess or a dearth of air, often present the phenomenon of mysteriously firing and again mysteriously missing, without apparent reason, the unexploded charges passing through the engine and then perhaps exploding in the muffler.

In adjusting a carbureter, the necessity for an accurately compounded mixture at all engine speeds, in the case of a compensating carbureter, and an accurate mixture at the average engine speed, in the case of other types, should be borne in mind.

The difference in working between an engine that is cold and the same engine when hot often is a factor that affects carburetion When an engine is hot there is a tendency for the heat to benefit the mixture by bringing its components into more intimate association, rendering them more certainly and completely explosive. Therefore, and especially with carbureters directly heated by the exhaust gases or otherwise, starting conditions and running conditions are materially different.

A fruitful source of carbureter trouble is the presence of dust and dirt, not collected from the fuel, but sucked in through the air inlet. For this reason, cleanliness of air supply should be looked after carefully. It is usual, in most well-designed cars, to take the air from some point fairly high up and sufficiently forward to avoid the dust raised by the wheels and underbody. A very fine gauze screen over the mouth of the inlet is advisable, and many consider bolting silk or a similar fabric to be even better. When such a strainer is used, the mouth of the inlet should be widely flared to insure as large an area of opening in the mesh as is represented by the cross section of the inlet pipe.

In conclusion, it may comfort the novice or amateur who is confronted with a difficult task when far from help, to know that there is no royal road to correct carbureter adjustment, and that even the factory experts only succeed in setting everything right after tiresome trials and tests. For instance, a carbureter may be giving too strong a mixture, whereupon a seemingly trifling readjustment makes it too weak. Another attempt may make it too strong, etc., but of such is the road to final satisfaction, and it is only by painstaking setting and resetting, gradually reducing the range of adjustments, that reliable operation is at last secured. It of course is impossible in an article of this brevity to more than suggest the general indications of carbureter trouble and the lines along which repairs must be effected. Just as all carbureters possess details of construction that make them different from other carbureters, so each make is subject to ailments that will not appear quite the same in some other. Therefore, the general application of the tips herein given must be figured out by the individual motorist himself, it being expected that this instruction will be merely helpful to him, rather than an absolute explanation of all possible difficulties. It must be remembered that much more space than is here occupied could be developed to each carbureter in existence, without at all exhausting the subject. Most builders of motor cars, and at any rate the manufacturers of carbureters, nowadays distribute free booklets of instruction, concerning their special devices, to purchasers, and it is by all means the wisest plan to keep these at hand, to consult when troubles arise.

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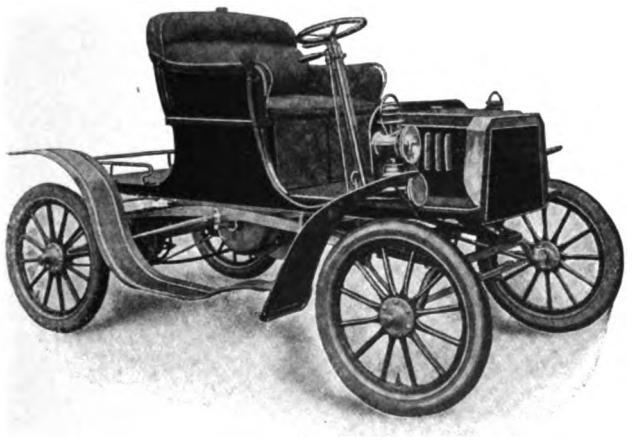
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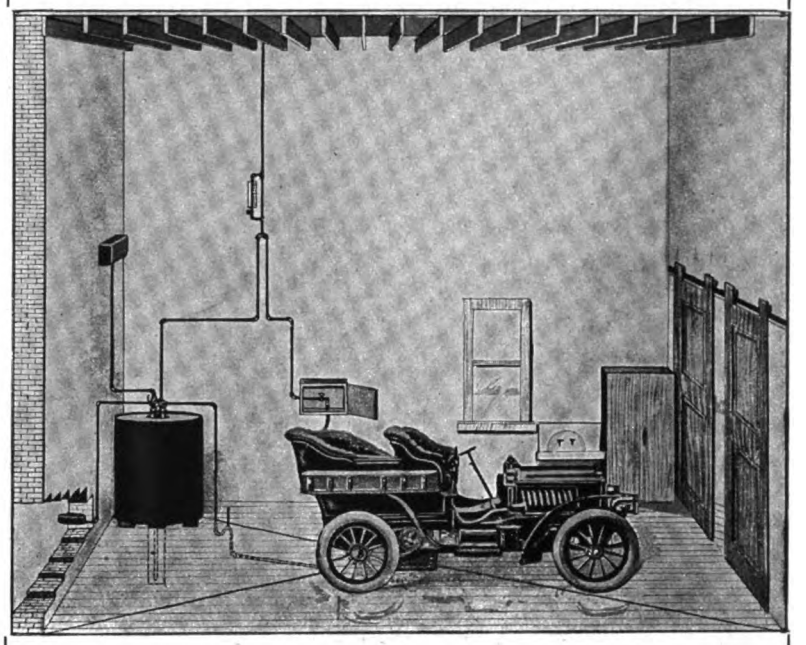
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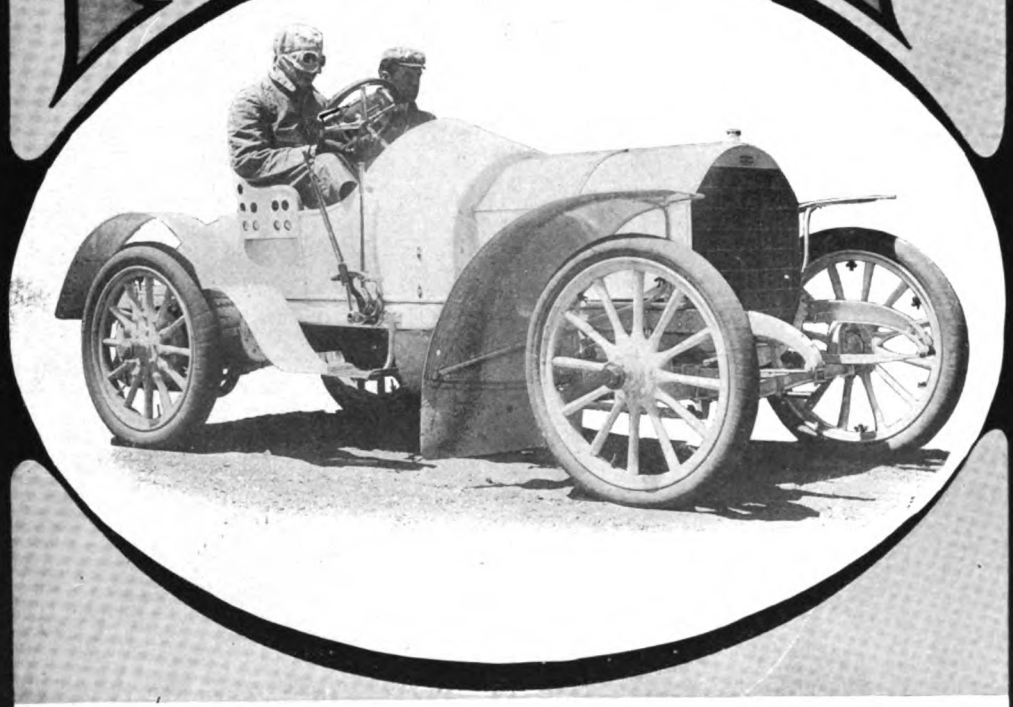
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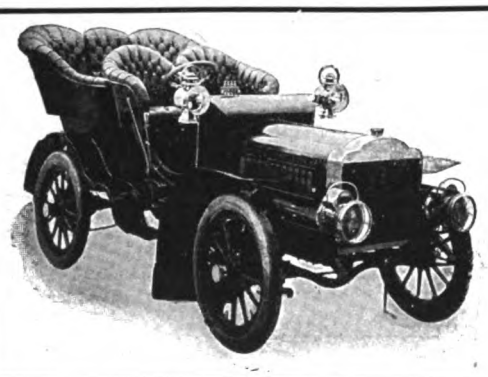
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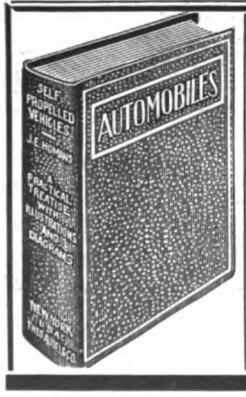
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THE CAR BEAUTIFUL

By Avant Courier

Artists are "kittle kattle," as the Scotch proverb puts it; and Sir William B. Richmond, R. A., must be one of the exaggerated examples. Having exhausted the phials of his wrath upon the ugliness of the motor car, which, by the way, is not always built for beauty but for use, especially the swifter racers, he has turned the light of his Royal academic countenance upon all and sundry of those who yet dwell in outer darkness and design automobiles, and this is his oracle:

"A bird's beak and a horse's head and shoulders suggest cleaving the air, therefor my car beautiful must have a prow." Ye Gods! here is our old friend the sea serpent, or the boat of the North Sea Viking come back to life. "It will be broadened in the beam and narrowed to the stern. It's driver will sit in the stern like a steersman; he will be raised to give command of the road, and this heightening of the rear will contribute some artistic lines to my car beautiful." We should think so! We have seen some of the artistic lines, a many years ago, elevated in the stern of a cornucopia in Barnum & Bailey's circus parades. No, thank you, Sir William!

THE MOTORCYCLES' FUTURE

An enthusiast writes thus: The motor cycle is opening up new fields for itself rapidly, and in none of them will it be a more welcome ally than that of military scouting. It was a great step to get the advantage of the mechanics of the bicycle in aid of the soldier's legs and giving him a speed more than equivalent to the horse's; but to be able to move a trusty guide with dispatches, over rough country 190 miles in a little more than eight hours, as was done recently in the Austrian army manœuvres, is a great stride. It would have taken several remounts of cavalry more than double the time to have covered the same news. The importance of rapid and accurate information is vital, and the methods laid under contribution to ensure it are proof of this. Pigeons, trained dogs, the horse, heliographic sun flashes, the field telegraph, the bicycle, and the wireless telegraph have one by one been eagerly pressed into service; now the tireless motor cycle leads the procession of usefulness. The vital occasions when rapid communication have determined great military victories, or disastrous defeats, would make a vastly interesting chapter. The motor cycle will ere long be adopted in every army in the world.



Bug Chauffeur: "My, this is awful! I can't get a firefly headlight for love nor pumpkin seeds. They don't like the smell of the car."

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21 more Goodrich Tires than any other make.

Over 50% of the Goodrich Tires started from New York, Boston, Baltimore and Philadelphia.

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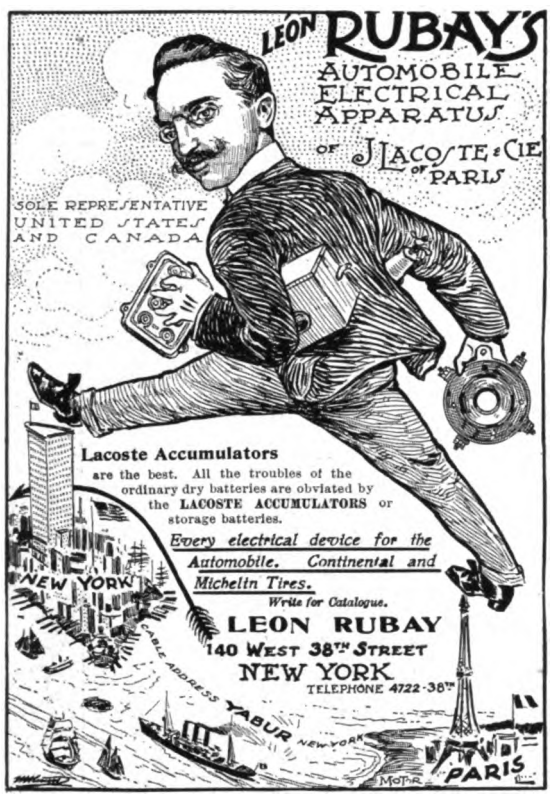
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PRACTICAL COURTESY AMONG MOTORISTS

The courtesies readily extended by one motor-car user to another out upon the road have a good deal of influence in giving the sport a friendly social background; and are helping materially in creating a sort of comraderie among owners of these vehicles. It is not necessary to go to Europe for instances to illustrate this hearty good feeling. A virtual brotherhood already exists, independent of organization, as such. Ladies no longer hesitate to make trips of considerable length into the country, for they now feel that they can depend upon chivalrous treatment and kindly courtesy whenever they may need the services of a chauffeur or other helper in the course of their journey.

Naturally, the greater and more unexpected the difficulties that hedge the path of the tourist, the more opportunities there are offered for the display of courtesy, and the more freely they seem to be extended. Occasionally the chance comes for the immediate payment of such attentions in kind; or to put it in a fairer light, chances for the unexpected exchange of courtesies. The highway bridge across the international boundary between the United States and Canada at Niagara Falls would seem as unlikely as any place in the world to afford such an opportunity; yet an incident lately come to notice proves the point.

A touring party from inland New York State drew up to the international bridge at the Falls, and, being unfamiliar with the customs regulations of the frontier, started to drive across. Of course they were halted by the customs officials and refused passage unless they should make a deposit of several hundred dollars, representing a temporary duty on their vehicle, to be refunded to them upon their return. As it had been their intention to cross only for that day, they had made no provision to meet a financial contingency of such magnitude.

As they were discussing the matter among themselves and endeavoring to formulate new plans to replace those so unexpectedly upset, another touring car was observed to approach on the Canadian side and start to cross, only to be stopped in the same manner. It so evidently was a case of two in the same predicament that they resolved to compare notes on the spot. It proved to have been the intention of the Canadian party to visit the American side for the day only, returning the same evening; and they likewise had made no provision for meeting the customs requirements. After about fifteen minutes' discussion of the situation and a short look at each others' cars, the idea of exchanging them for the day was broached. The arrangement was quickly concluded; the American party entering the Canadian machine, and vice versa. After agreeing to meet at a certain time and place, they separated, each going on his intended way.

The American party had a most enjoyable day's outing by way of St. Catherines and Hamilton to Toronto, rounding the lake again from Toronto to Hamilton, and coming back to the Falls by way of Welland; while the Canadian party in the American machine patrolled the Niagara frontier from the Falls to the Tonawandas and to Buffalo, returning by way of Lockport. Reaching the rendezvous at the time appointed, all voted the day had been most interesting and enjoyable. Then a coin was tossed to determine which party should be the guest of the other at dinner, and the cars were left at garages in their respective countries during the occasion.

As touring extends, and especially as the members of clubs and national associations become better known to each other, a very large and useful opportunity will come for the further show of such courtesies, particularly when two Americans or two Canadians chance to meet while touring in Great Britain or on the Continent. These informal exchanges of courtesy will do much to advance the interests of motoring.

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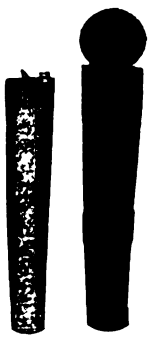
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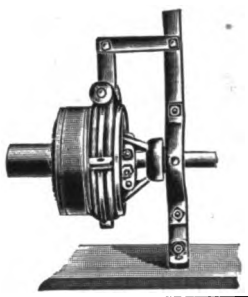
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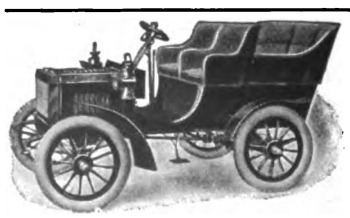
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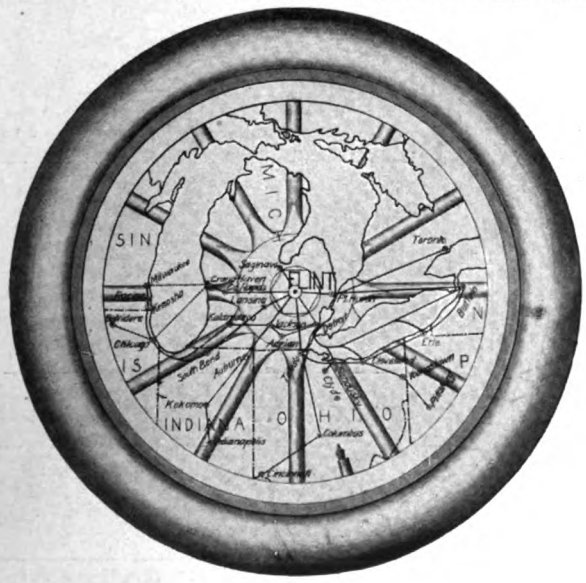
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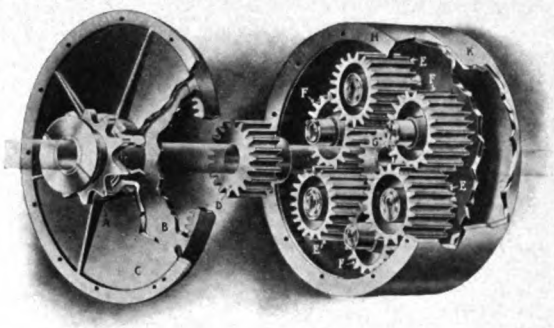
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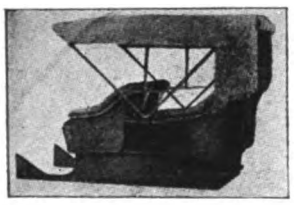


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INFLUENCES OF MOTORING ON COUNTRY LIFE

With the more general use of the motor car in rural America, new conditions will arise to which the dweller in the country will be introduced, at least by contact, and to which it is hoped he will not be too slow in adapting himself. There will be, of course, other benefits beyond the obvious and basic one of well-constructed and well-kept roads, the advantages of which, for business or pleasure, are likely to be his first-noticed evidence that the new conveyance can be of benefit to some one besides its owner.

Into whatever community the motor-driven vehicle may come, there also will come the influence of its users. Those who grow accustomed to its presence quickly lose something of their prejudice, and are not long in discovering ways in which its more general use may benefit them directly. Even as the city dweller becomes more active and alert from the very force of his environment, the dweller in the country will gain a much better and more adequate idea of the possibilities of rural life by making use of the best of all means to that end—the modern motor car.

Having learned by actual demonstration the benefits of closer contact with his fellow men and of being better in touch with the improving facilities of the times—notably the facilities of trade and transportation—we may look for an extension of the country dweller's activities into the line of public improvements. His attention to the condition of the highways is probably the first direction in which this interest will manifest itself. He is likely to be interested particularly in the condition of the roads between his own home and the nearest town or city. He will discover that in a larger place, or perhaps some small city a few miles farther away, he can secure better prices for his products. By comparison of distances, he will find the time required to get to the larger place would not be sufficiently greater to be an objection, with equally good roads between. Very possibly he will secure better freight rates at one place than at another, and with the right sort of transportation facilities—good roads and modern vehicles—he will benefit by the option of shipment.

And as the desirability of a more extended social intercourse becomes apparent to him, he will see the usefulness of all this. Some of his friends and associates may live upon highways which have not been improved, and he will become, consciously or not, a missionary to them. Having learned from practical experience that he can travel considerably longer distances with greater comfort and in much less time than formerly, from a personal understanding of this advantage he will become a really public-spirited citizen. With the increasing number of good roads, too, a greater number of people from the city will have taken up their residences near him, and a larger prosperity will come to him and to his neighbors through this means. And, some day, after he has been given a lift by one of the city men in his motor car, he will yield a slow consent, more obviously than actually reluctant, to the suggestion that he purchase one for his own use.

The means wherewith to buy is then forthcoming, and with only half concealed pride he thereafter visits friends formerly considered too distant to be visited except at long intervals, over a fine system of highways which he has been largely instrumental in securing.

How much more reasonable, then, will appear to him the suggestion that an auto-truck would enable him to make still further savings in the time required to market his produce, by reason of the larger loads and the uniformly greater speed of travel. He will read with new interest the prediction that the constant improvement in motor-vehicle construction will cheapen this form of transportation so as to make the motor-truck the vehicle for himself and neighbors; and while for the time this may seem an extreme view he will welcome whatever advances may be made.

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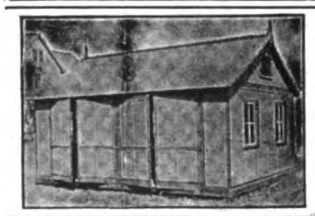
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The Maid and the Motor Car

(Continued from page 35.)

after his retreating machine with amazement; he had never acted in this way before.

"Oh, Mr. Beverly," she called after him, "you're not going to let me be arrested." The Dauntless seemed to give a responsive sympathetic throb at the manifest distress in her voice. But it kept on.

"Charles," there was the sound of tears in the name.

"Well?" The Dauntless stopped.

"Do not leave me here all alone."

"You know the only condition on which I return," said Beverly, his heart throbbing simultaneously with his machine.

There was a long pause fraught with intensity, broken by the noise of the heavy panting of the motors. "Well?" he demanded gruffly, unable to longer endure the suspense.

"Well—yes—then," said a reluctant voice, in scarcely a whisper.

In an instant Beverly jumped quickly out of his car, kissing her hand before the impassive eyes of the law in the blue uniforms. Incidently, he shoved a crisp bill into the law's hand.

"I was afraid you fellows wouldn't understand my 'phone message," he whispered stealthily, "but you did that all right, I'll put you in front seats at the wedding."

"I've fixed it all right, Grace," he tried to say easily, but the falsehood sat guiltily upon his conscience. "Come now, Lovekins, we'll tow your lady-machine home. My Dauntless will carry us both hereafter, for I've participated in my last race."

"As you say," replied Miss Carsdale meekly, and Beverly helped her to a seat beside him in the big red car.

Americanizing Motor Language

Editor of MOTOR:

Dear Sir.—Permit me to suggest the advisability and necessity for the *Americanizing* of the present used *Frenchified* terms, "garage" and "chauffeur," and the use in their stead of some short terms such as "autory," and "automan," or "autorist," etc., or other suitable and comprehensive, as well as descriptive, words. The automobile has come to stay, and it is high time that the editors of the various automobile journals, who so readily reach the public eye and who can mold public opinion in the right direction, should coin some such comprehensive American designations as are suggested, and which may come into general use *in this country*, as substitutes for the barbarous and foreign terms, so glibly mispronounced as are the ones noted. Start the ball rolling, Mr. Editor.

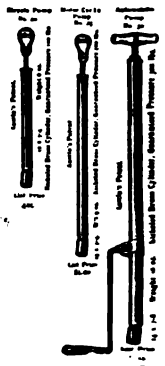
AN ARDENT AUTOMOBILIST.

San Francisco, Cal., Sept. 20, 1904.



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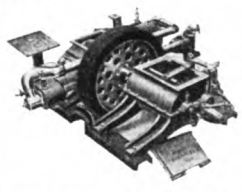
will positively prevent above troubles and will not injure the tire.

Easily and quickly adjusted. *Send for booklet.*

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EMBODIED IR THE BRENNAN STANDARD MOTOR



EXTREME simplicity of construction, substantial and large bearings, thereby increasing the life of the motor and reducing wear to a minimum. So constructed that bearings are easily adjusted. All parts easily accessible at all times for inspection. Will develop over 40 per cent. above their rated power on actual brake test. Built in sizes 6, 8, 12, 14, 16 and 20 H. P. Investigation Solicited. Inquiries promptly attended to

BRENNAN MOTOR CO., Syracuse, N.Y., U.S.A.

BLOW YOUR HORN AND FILL YOUR TIRE

The Watres Power Horn and Tire Filler does it with the same equipment, utilizing the exploded gas from your engine. A minute fraction of exploded gas is taken from the engine and stored in an aluminum tank, 6x12 inches in size, screwed beneath the floor of your car. The hose for the horn is attached to this tank. Another connection runs to the tire.

A simple touch of your foot upon the button blows your horn a good, strong blast. Simply turning a valve fills your tires.

The price, complete, including the tire filler and a regular chime whistle, is $35. You can use the whistle, if you like, or you can use your own horn. Our connection is adapted for use with your present horn and hose. We do not send horn or hose.

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A regular stock 15-20 horsepower **Darracq car recently made the** most wonderful non-stop endurance run ever attempted. It traveled a distance of 3450 miles from New York City to St. Louis and return *without once stopping the motor.* The car was driven by F. A. La Roche, who was relieved by A. Le Blanc at stated intervals. The American Automobile Association sanctioned **the run and appointed** two observers—H. H. Everett and Norris N. Mason—upon whose reports the Association officially recognizes the wonderful record made.













On July 25th last at 9:42 A. M. **the car left New York and** traveled day and night through Albany, Syracuse, Buffalo, Cleveland, Toledo, South Bend, Chicago, Bloomington, Springfield, to St. Louis. **The return trip was made through** Terre Haute, Columbus, Wheeling, Pittsburg, Gettysburg, Philadelphia, to New York City. The total Odometer distance was 3450 2-5 miles **over the worst possible roads** and almost continually through days and nights of storm.

THE DARRACQ STANDS FOR DURABILITY

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The Ford racer uses them because they stay right longer than any other. They wouldn't use them if they were not dependable.

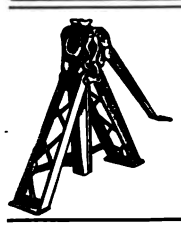
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JEWEL MICA PLUGS
are the limit. None others quite so good.
Used and endorsed by the leading manufacturers.
Pittsfield Spark Coil Co., Pittsfield, Mass.



SEARLS' FOLDING MOTOR CAR JACKS
New features
Single or folding legs.
FOOT OR HAND POWER
Send for Catalogue.
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Latest styles
Manufactured by
JNO. SCHEIDIG & CO.
43 Maiden Lane
NEW YORK CITY
Send for illustrated catalogue and dealers' discount.
All Kinds of Goggles Repaired

It's **POOR POLICY** to have a poor Ignition outfit on a high priced car. We have 15 years' experience on BOTH CONTINENTS and make ONLY THE FINEST IGNITION MATERIAL.
HERZ & CO., 55 Grand Street NEW YORK
CIVIL ENGINEERS WRITE FOR LIST TO-DAY.

Graphite Lubrication has great advantage for the Autoist
Dixon's newest catalogue
"Graphite for the Motor."
gives full information upon the subject. Send for it, mentioning "MOTOR"
JOSEPH DIXON CRUCIBLE CO.,
JERSEY CITY, N. J.

FOR THE MOTORCYCLIST

The accompanying illustration shows a 1¾ horsepower motorcycle engine weighing only eight and one-half pounds. This motor runs normally at 3,500 revolutions a minute, and a bicycle equipped with it, and with filled tanks, carbureters, battery, etc., weights but 44 pounds.



The cylinder is formed in one piece from a length of steel tube, reduced in diameter at the top. The inlet valve is located in the opening at the upper end of the tube, and the exhaust valve, which is in the side of the cylinder, discharges directly into the open air, without the intervention of a muffler. Neither cooling flanges nor water jacket are employed, the cylinder diameter being so small that air cooling on its plain outer surface is sufficient. The flywheel is enclosed in the crank chamber, which is of aluminum.

This innovation is the product of an European concern, and is said to be very serviceable. The motor is not intended to develop power enough to propel the bicycle without pedal assistance, except on good and level roads, but its energy is sufficient to reduce the muscular effort to a very small amount.

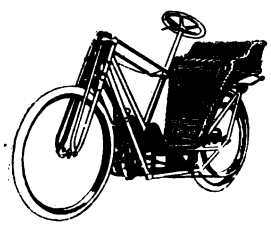
A radical departure from previous methods of air-cooling the cylinders of gas engines is now marketed as a standard construction by one of the foremost English motorcycle builders. The improvement consists in an air space between the cylinders and valve chamber, a plan which is said to keep the latter much cooler, other conditions being equal, than has



been possible heretofore. The construction adopted involves an almost complete separation of the valve chamber from the clyinder, they being held together only by the cooling flanges and a common exhaust and inlet opening. The whole affair is cast integral. An incidental advantage of the new method is the extreme simplicity of the silencer, it consisting substantially of a perforated plate bolted to the side of the valve chamber.

A motorcycle race from Denver to Washington, by two soldiers of the regular army, is proposed by Gen. Frank D. Baldwin, commander of the Department of the Colorado. By this test, it is hoped to determine the practicability of the motor-cycle for war-time use.

A new motorcycle that approaches the automobile in the luxury of its appointments has a wicker-work seat, a footboard, a drop frame, and wheel steering. In this machine, the engine is started by a handle, and pedals, if provided, are intended only for occasional use in emergencies. Spring support of the seat and framework adds much to the general comfort.



Americans Coming to Paris to Purchase Automobiles
Order your Body Work of
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Highest Class Workmanship
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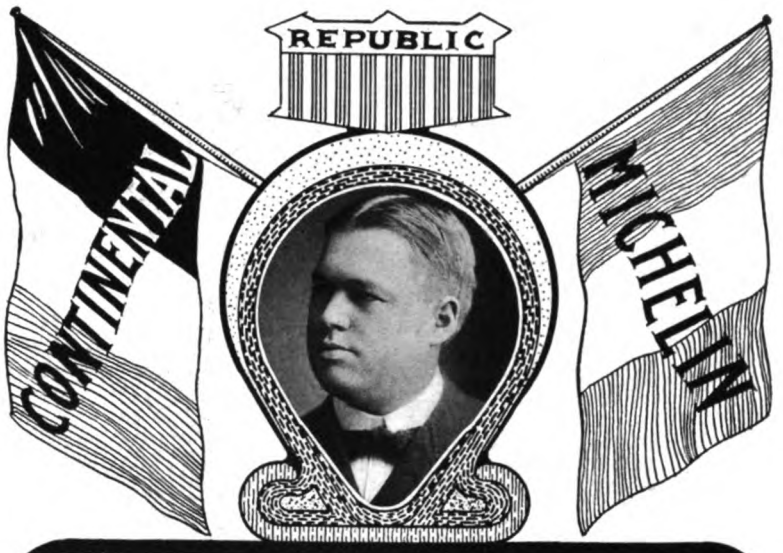
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of the Motor Tire business and can repair and recover your Michelin and Continental or American tires and make them as good as new. If you would *save money* and desire *good work* send your tires to *me at once*. I will fit your tires with extra heavy rubber vulcanized treads or supply non-slip leather covers for winter use. Inner tubes vulcanized. Single tube motor tires repaired. Solid and Cushion Tires applied. Prompt service and satisfaction guaranteed. Prices on all work by return mail. Frederick E. McEwen, Manager.

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P MOTOR

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In Florida you can enjoy motoring by car or boat throughout the entire winter.

Along the East Coast are 300 miles of picturesque and perfectly safe inland waterways connecting St. Augustine, Ormond, Daytona, Palm Beach and Miami.

There are comprehensive systems of hard roads radiating from a dozen different resorts in the State which are being rapidly connected with each other.

The Ormond-Daytona sea beach is the finest Automobile Course in the world.

It is my business to give information concerning Florida and the South. I know all about the hotels and routes, in fact pretty nearly everything you may want to know, and I never ask or receive any fees, so you better

Ask Mr. Foster

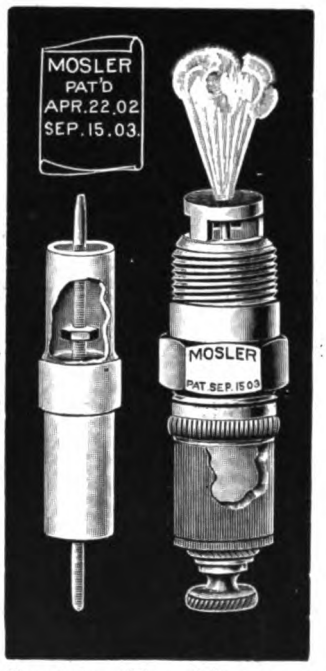
HE PROBABLY KNOWS

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1905 "SPIT-FIRE"

THEY ARE THE BEST

SPIT FIRE while others spark only. Thereby give ENERGETIC IGNITION — GREATER POWER and stand more SOOT, OIL and WATER than any other Plug. Base acts as condenser of electricity, facilitates sparking. Makes Plug SPIT FIRE, protects porcelain and sparking point and prevents porcelain chips from falling into cylinder, avoiding expensive damages.

ALL SIZES in Stock. $1.50
With Patented Protector, $2.00

Made to fit any engine, any thread.

Used by the Leading Manufacturers.

GUARANTEE:

1905 "SPIT-FIRE" Plug made good as new—*free of charge*—if not giving at least *NINETY DAYS'* satisfaction. Any time thereafter send old Plug and *thirty cents* and we will replace or repair and return Plug post-paid as good as new.

Ignition Troubles are often due to the Commutators

DON'T ALWAYS BLAME THE PLUGS



THE MOSLER PRIMARY TIMER is constructed on a scientific basis. It is intended especially to work in conjunction with vibrator coils and uses the **mimimum amount of current,** thereby great **saving in batteries.** Commutator runs in oil. Self contained. Runs in either direction. Not affected by engine speed. **Self Adjusting.** Multiple sylinders set as easy as one. Contacts exposed to view through heavy plate glass cover, making same **Water and Dust Proof.**

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The Incomparable White



King of the Belgians body, long wheel base, large wheels, plenty of room, great luxury of upholstery and fittings, higher power and greater speed.

1905 Model

A touring car which runs noiselessly without odor, smoke or vibration; as simple to operate as an electric, with a radius of operation as great as the higher-priced, high-powered gasoline machines.

WHITE SEWING MACHINE COMPANY

CLEVELAND OHIO

Fascinating Motor Fashions

(Continued from page 26.)

stamped suede waistcoat made with pockets and buttoning under a fly front are the very latest fashion of the hour.

Motor hats, like motor coats, have lost all their ugliness. The new hats, for this sport of all others, have a right, from the style standpoint, to claim a place in the Autumn and Winter millinery displays. The mushroom-shaped hat is the latest for motoring. It fits so perfectly that it clings to the head, the brim having a slight droop. This style of hat is made of mohair belt, and comes in the most effective of shades—burnt onion brown, porcelain blue, bronze green, etc., To the wide, flat crown is attached a silk curtain, exactly matching the felt in color. This curtain covers the back and sides of the head, the ends tying in front under the chin. A number of the motor hats are trimmed with soft little feather breasts in changing shades.

With these hats it is advisable always to wear a silk curtain or a silk hood, if one is off for a long ride. The most convenient silk hoods are those which are made in combination with a face veil. The hood covers the hat, the back and sides of the head, and often falls in a short cape over the shoulders. Joined to the hood is a face veil either of black lace or heavy chiffon, which is furnished with eye-glass-shaped pieces of mica. The silk hood, as well as the silk curtain, is always made to match in color the motor coat.

So particular is the motor girl of to-day about every little detail of her dress that she even goes so far as to have the soft leather in which her goggles are inserted in the same shade as her motor coat, and many times she has the little leather mask bound with chenille.

MOTOR CALENDAR

OCTOBER

SUN. 2 to Oct. 5	Kilometre Trials, Dourdan, France
SAT. 8	Vanderbilt Cup Race, Long Island, N. Y.
SUN. 9	Hill Climb, Gaillon, France
MON. 10	Fall Tour Automobile Club of America
FRI. 14 to Oct. 22	Leipzig Cycle and Motor Show, France
SAT. 22	Race Meet, Brighton Beach, New York
SUN. 23	Hill Climb, Chateau Thierry, France

NOVEMBER

FRI. 18 to Nov. 26	Stanley Cycle and Motor Show, Agricultural Hall, London, England
SUN. 23	100-Kilometre Trials, Algeria
THURS. 24	Hill-Climbing Contest, Eagle Rock Hill, New Jersey

DECEMBER

FRI. 9 to Dec. 25	Salon d'Automobile, Paris
MON. 26 to Jan. 2	Reliability Trial, Motor Union of Western India

JANUARY, 1905

SAT. 14 to Jan. 21	N. A. A. M. Show, Madison Square Garden, New York
SAT. 14 to Jan. 24	Automobile Salon, Brussels, Belgium
WED. 11 to Jan. 24	Importers' Automobile Salon, Herald Square, New York
FRI. 27 to Feb. 4	Automobile Show, Crystal Palace, London, England

FEBRUARY

SAT. 4 to Feb. 19	Automobile Exhibition, Berlin, Germany
SUN. 5 to Feb. 19	Automobile Week, Nice, France
MON. 13 to Feb. 18	N. A. A. M. Show, Coliseum, Chicago, Ill.
WED. 15	Turin Salon, Italy

MARCH

FRI. 3 to Mar. 11	Motor-Cycle Show, Liverpool, England
Mon. 13 to Mar. 18	Boston Show
MON. 27 to Apr. 5	Show, Washington, D. C.

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Users of DURO Accumulators are assured of a mileage guarantee obtainable in no other way

CHICAGO BATTERY COMPANY
1421 MICHIGAN AVENUE
CHICAGO

This Means--
Both Automobile and Metal Covered Ignition Batteries

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P MOTOR

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to the most careful motor-car driver. Sometimes a pedestrian, bicyclist, etc., may get in front of your machine and get hurt.

A Damage Suit or Claim

is in most cases sure to follow, even though the injured person be entirely at fault.
A safe

Liability Insurance Protects You

not only against monetary loss, but also of time. MOTOR BUREAU will advise you where to get such a policy at low rates. Fill out the blank below and mail to-day. You incur no obligation.

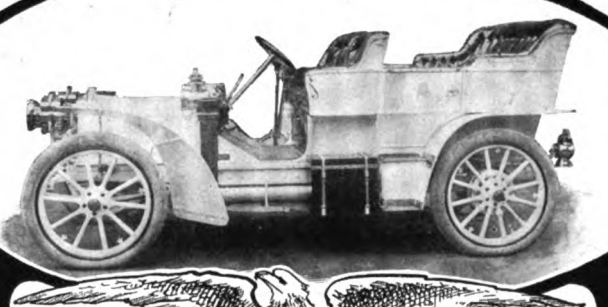
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The Martini Motor Car has a record in Europe unrivalled in every respect of **endurance, power and speed.** It is the one foreign car which has been designed for American roads.

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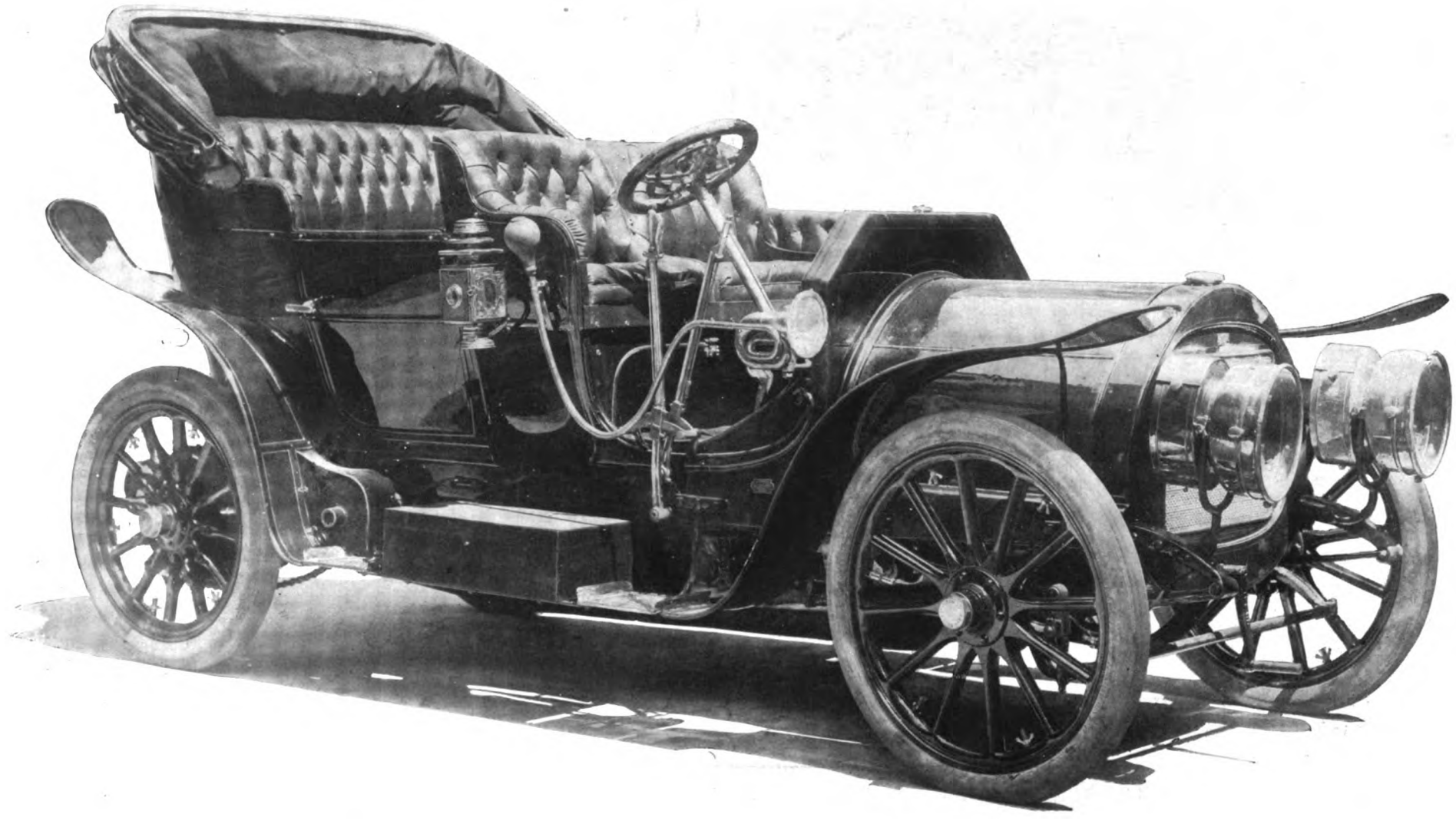
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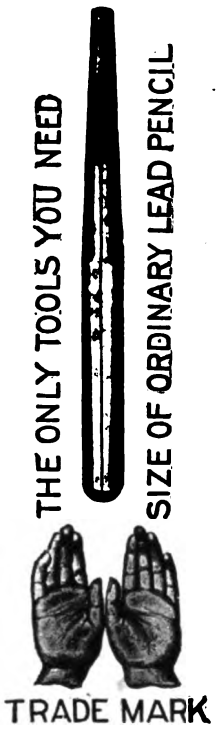
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Detachable Automobile Tire

"THE DURABLE DUNLOP"





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¶ It is the easiest tire to detach—a novice can remove a PERFECTED DUNLOP in less time than any other tire. Punctures, therefore, can be repaired quickly. It is made of the best rubber, by the best workmen, and is thoroughly inspected and tested before leaving the factory.

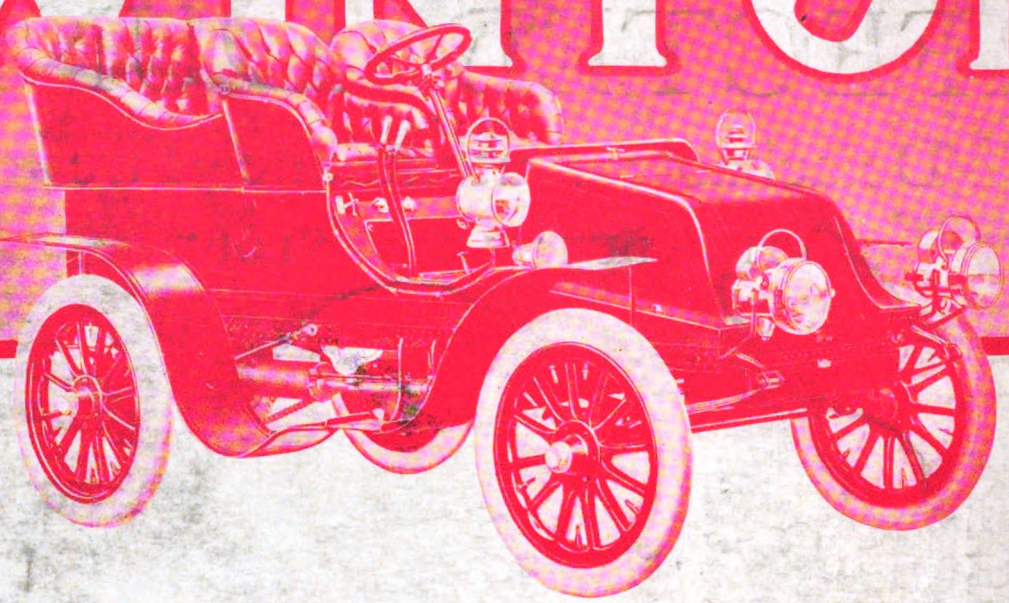
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¶ World's record for cars weighing less than 1,800 lbs. reduced to 58 4-5 seconds on the WINTON Bullet No. 3, by Chas. Gorndt at Cleveland, Aug. 23, 1904.

¶ Neither man had ever before driven a WINTON in a race.

¶ Anybody can drive the WINTON successfully because it is easily operated, fast, powerful, durable.

¶ $2,500 completely equipped; $2,300 without top; f. o. b. Cleveland.

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Member A. L. A. M.

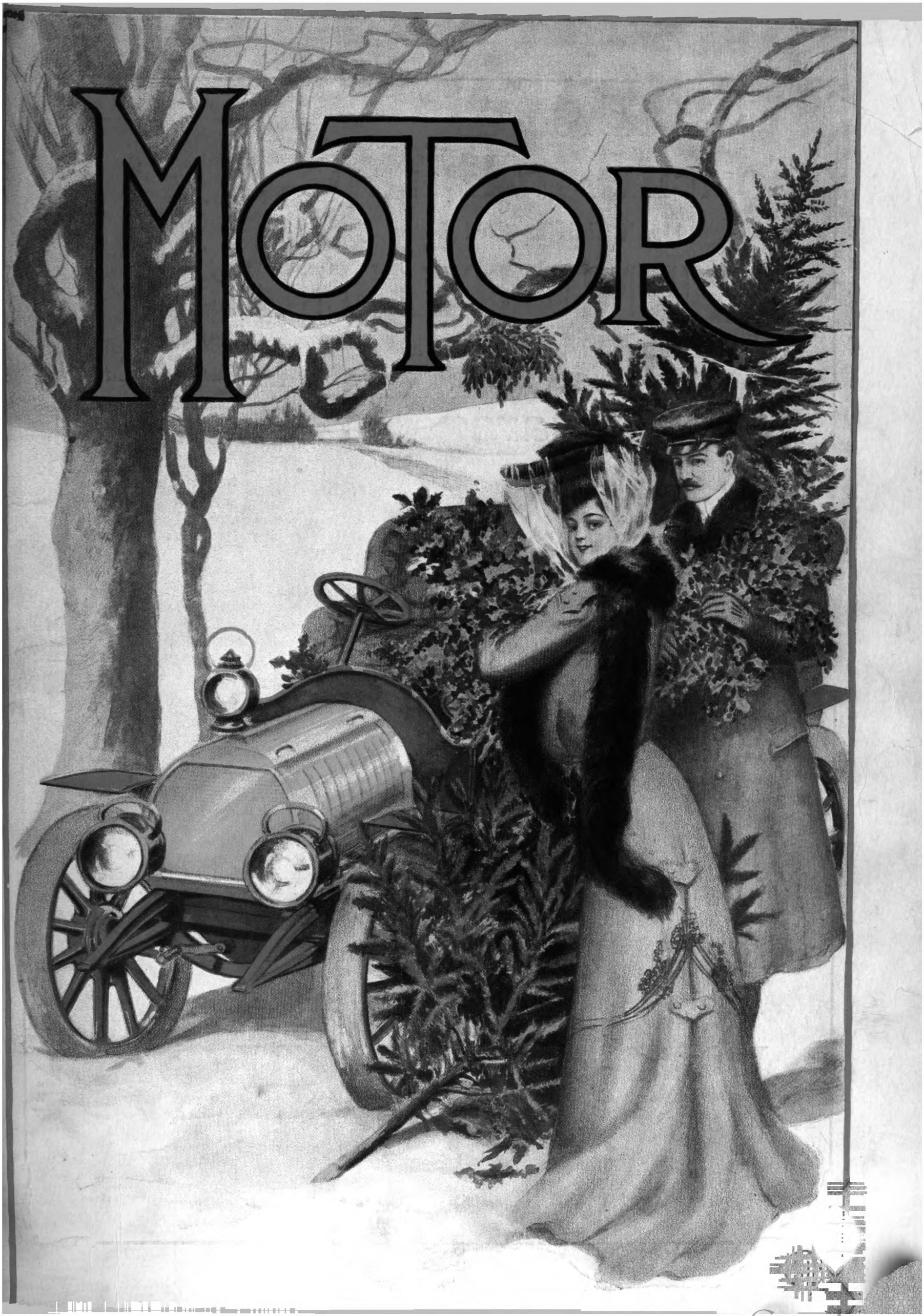
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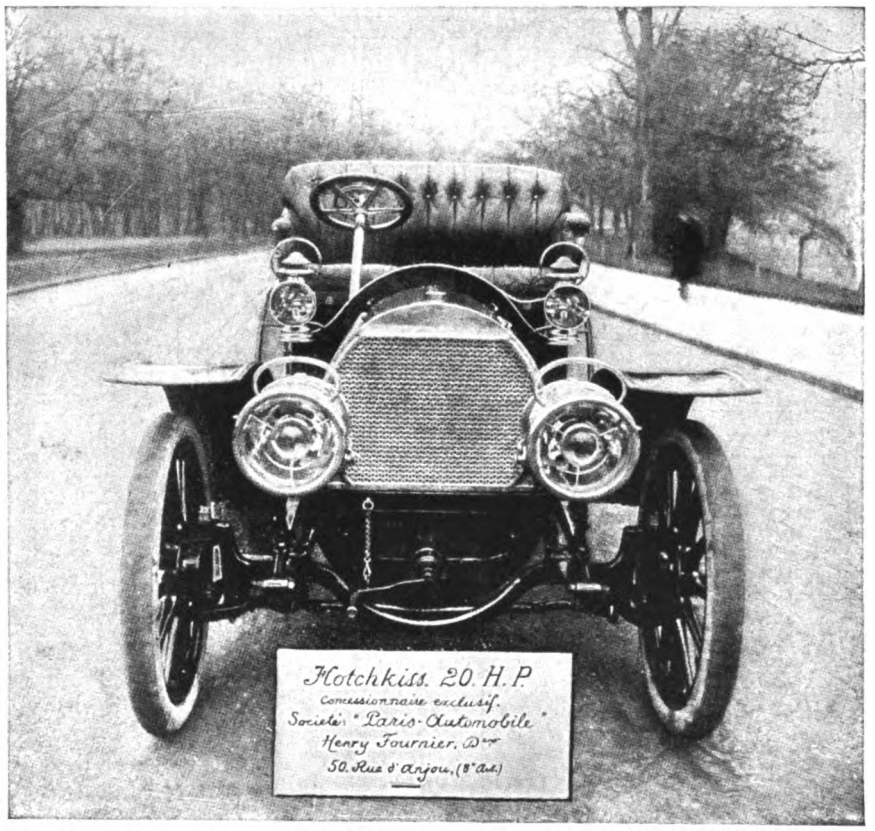


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The advertising pages of this issue of MOTOR should be as carefully read as the text pages, because they are its readers' *information bureau*. If you wish to buy a motor-car, you will find the standard makes advertised in MOTOR. If you wish tires, lamps, motor-car accessories, etc., you will find only the standard makes of anything represented in MOTOR's advertising pages.

Never hesitate to write to advertisers for more complete information than the advertisements contain. You incur no obligation, if you do. And when you do, kindly mention MOTOR.

For information about anything not in MOTOR,, write us and we will see that you are informed.

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ATLANTIC CITY, N. J.—Hotel Traymore.
ATLANTIC CITY, N. J.—Hotel Dennis.
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ATLANTIC CITY, N. J.—The Chalfonte.
ATLANTIC CITY, N. J.—Young's Hotel.
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BEDFORD, PA.—Bedford Springs Hotel.
BEDFORD, PA.—Hotel Waverly.
BEDFORD, PA.—Bedford House.
BEDFORD, PA.—Hotel Chalybeate.
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BOSTON, MASS.—The Berkeley.
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BRETTON WOODS, N. H.—The Mount Washington.
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BUFFALO, N. Y.—Mansion House.
BUFFALO, N. Y.—The Iroquois.
CALDWELL, N. J.—Monomonock Inn.
CATSKILL, N. Y.—Smith House.
CHICAGO, ILL.—Edinburgh Hotel.
CHICAGO, ILL.—The Stratford.
CHICAGO, ILL.—Victoria Hotel.
CHICAGO, ILL.—Lexington Hotel.
CHAMBERSBURG, PA.—Hotel Washington.
CINCINNATI, OHIO.—Grand Hotel.
CLASON POINT, N. Y.—The Inn.
CLEVELAND, OHIO.—Kennard.
COLUMBUS, OHIO.—Chittenden.
DAYTONA, FLA.—City Hotel.
DAYTONA, FLA.—Fountain City House.
DELAWARE WATER GAP, PA.—The Glenwood.
DELAWARE WATER GAP, PA.—Water Gap House.
DETROIT, MICH.—Hotel Metropole.
DETROIT, MICH.—Library Park.
EASTON, PA.—Paxinosa Inn.
EAST ST. LOUIS, ILL.—Royal Hotel.
ELMIRA, N. Y.—Delavan House.
ELYRIA, OHIO.—Andwur.
ERIE, PA.—Reed House.
FREDERICKSBURG, MD.—City Hotel.
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GANANOQUE, ONT.—The Inn.
GETTYSBURG, PA.—Eagle Hotel.
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GREENFIELD, MASS.—The Devens.
GREAT BARRINGTON, MASS.—Berkshire Inn.
HAGERSTOWN, MD.—Hotel Hamilton.
HARRISBURG, PA.—Lochiel.
JACKSON, N. H.—Glen Ellis House.
KENNEBUNKPORT, ME.—Oceanic.
LARCHMONT, N. Y.—Blossom Heath Inn.
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LEXINGTON, N. Y.—O'Hara House.
LENOX, MASS.—Hotel Aspinwall.
LIMA, OHIO.—Lima House.
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MAGNOLIA, MASS.—The Hesperus.
MARION, MASS.—The Sippican.
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MILLBROOK, N. Y.—Millbrook Inn.
MORRISTOWN, N. J.—Mansion House.
MORRISTOWN, N. J.—United States.
MT. ARLINGTON, N. J.—Hotel Breslin.
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NARRAGANSETT PIER, R. I.—The New Mathewson.
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NEW HAVEN, CONN.—Moseley's New Haven House.
NEW HAVEN, CONN.—Hotel Davenport.
NEWPORT, VT.—Memphremagog House.
NIAGARA FALLS, N. Y.—Tower Hotel.
NASHUA, N. H.—Tremont House.
NEWBURG, N. Y.—Palatine Hotel.
NORTH CONWAY, N. H.—Kearsage Hotel.
NORTH WATER GAP, PA.—Cataract House.
OCEAN GROVE, N. J.—Alaska House.
OCEAN GROVE, N. J.—The Mulford.
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PHILADELPHIA, PA.—Windsor Hotel.
PHILADELPHIA, PA.—Hotel Vendig.
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PINE HILL, N. Y.—The Alpine.
PINE HILL, N. Y.—The Winterton.
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SPRINGFIELD, ILL.—Hotel Silas.
SPRINGFIELD, ILL.—Leland House.
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STAMFORD, N. Y.—Hotel Hamilton.
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SUMMIT, N. J.—The Beechwood.
SUGAR HILL, N. H.—Sunset Hill House.
SYRACUSE, N. Y.—The Yates.
TALLAHASSEE, FLA.—The New Leon Hotel.
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TOLEDO, OHIO.—Boody House.
TOLEDO, OHIO.—Hotel Madison.
TRENTON, N. J.—Hotel Sterling.
TRENTON, N. J.—American House.
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UTICA, N. Y.—The Butterfield.
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WASHINGTON, D. C.—St. James.
WASHINGTON, D. C.—Shoreham.
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New York City



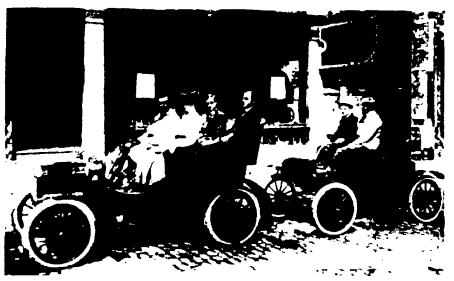
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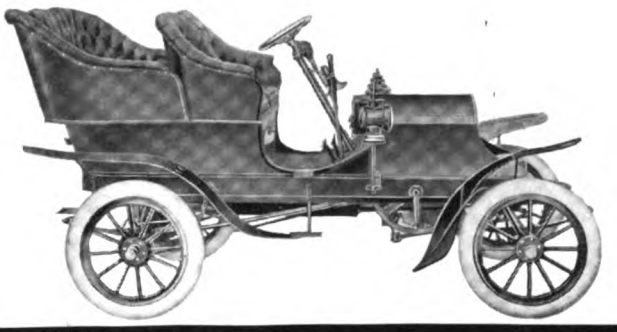
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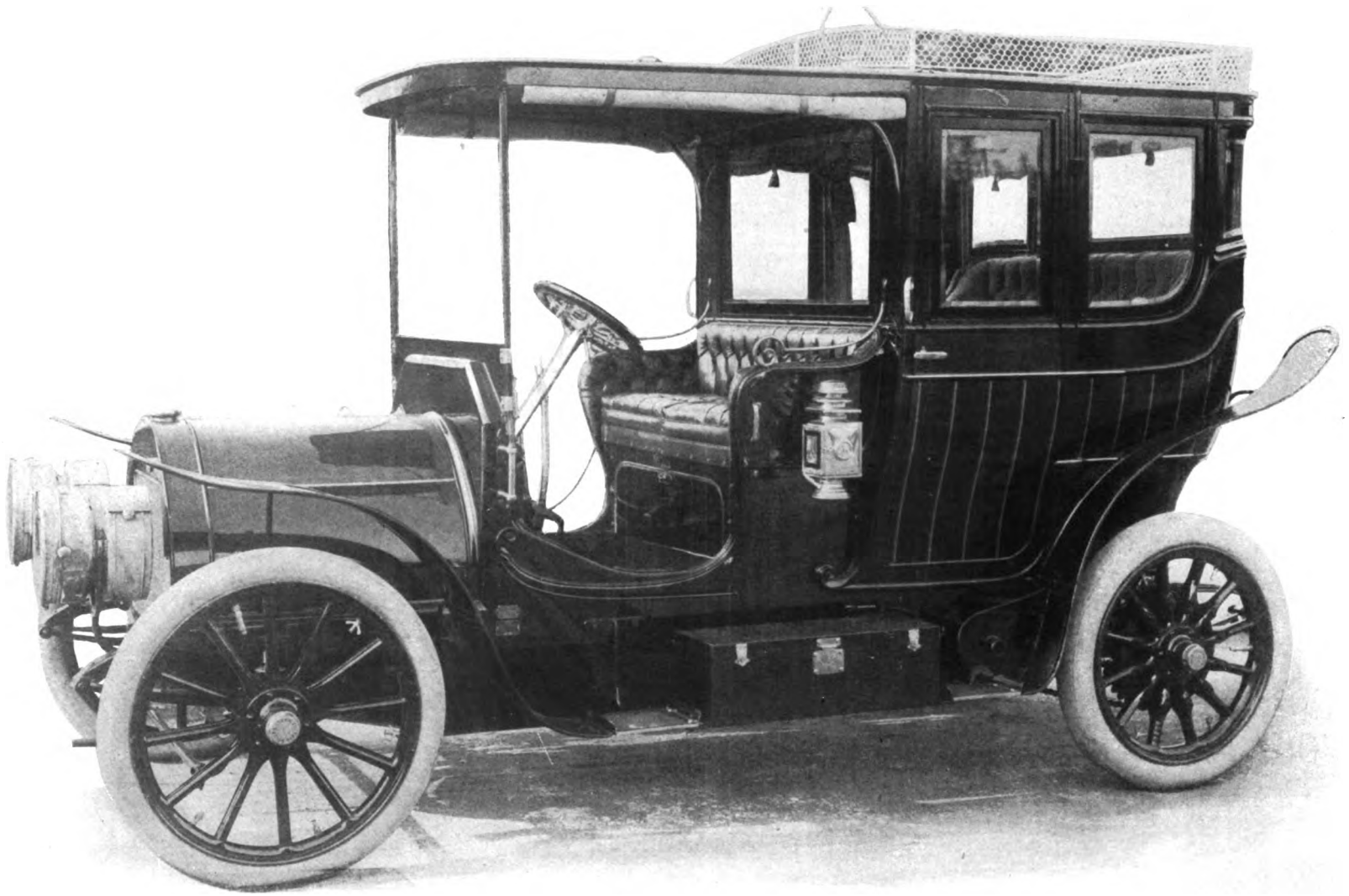
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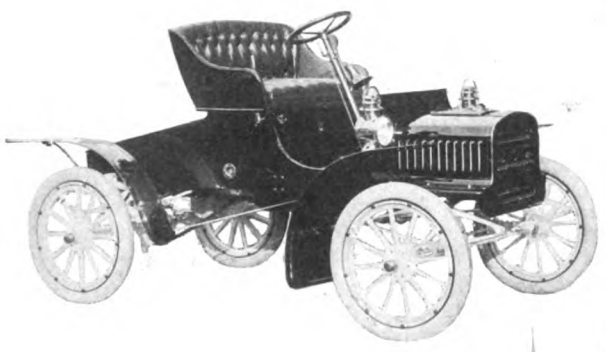
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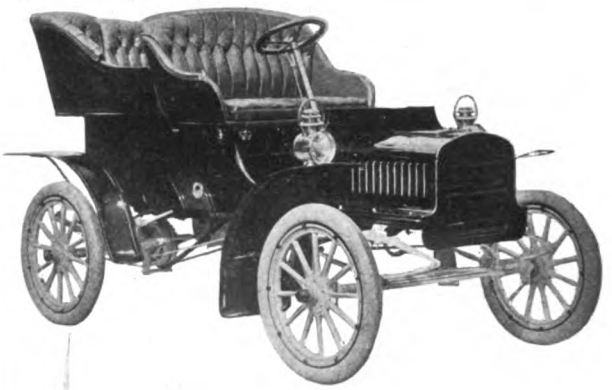
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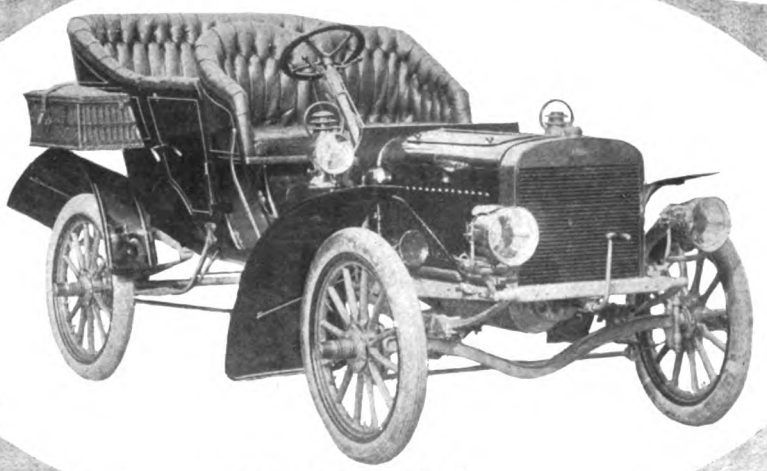


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A Monthly Magazine Devoted to Motoring of All Kinds.

Published by New Publication Company.

NEW YORK, BOSTON, CHICAGO, SAN FRANCISCO, LOS ANGELES.

Entered as second-class matter at the New York, N. Y., Post Office, March, 1904.

Principal Address: 1789 Broadway, New York

Branch offices: Chicago, 711 Security Bldg.; San Francisco, Hearst Building, Market Street; Los Angeles, Examiner Building; Boston, 82 Summer Street; London, 5 New Bridge Street, Ludgate Circus, E. C.; Paris, J. Milton, 17 Rue Brunel.

COPYRIGHT, 1904, BY NEW PUBLICATION COMPANY.

Subscription, Three Dollars ($3.00) Per Year.

Cable Address : Motoria *Telephone: 3900 Columbus*

Postage free in the United States, Canada, Mexico, Hawaii, Porto Rico, and the Philippines. Postage in other countries, $1.00 per year extra. Address business communications and make checks payable to MOTOR. Anything connected with the editorial department should be addressed to the editor.



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Beneath the rustling California Redwoods
Where road and valley dip
Below the foothills of the San Jacinto Peaks;
Near where old Pala Mission's crumbling silence tells
Upon the rosary of long years
The prayer of the pious ancientries
Of half forgotten days;
Where sunlight glimpsing golden thro the trees
Merges with furtive shadows of green twilight;
Where breath of everlasting light
Makes evergreen
The valley and the hills

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M O T O R

Vol. III. No. 3 DECEMBER, 1904 Price, 25 Cents

ENGLISH WOMEN WHO MOTOR

By Lady Henry Somerset

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"What a delightful thing is a turnpike road, so smooth, so level, such a means of speeding the earth as scarce the eagle in the broad air can accomplish." So wrote Lord Byron years ago. What would he have left to-day, when speed is understood as never before; speed as the opening of a new era in life, a new phase of existence which is eventually destined to revolutionize our social system.



It is curious to note that the means of locomotion had scarcely varied from the Cæsars to Victoria. The horse, the chariot, the carriage offered little or no variety as regards speed, and only in the early days of the Victorian era came that wonderful invention which has been destined to change the face of the world, to shrink space into proportions that daily grow smaller, and to defy distance. With a sure but subtle power, steam displaced all other means of transit, and there is hardly any part of the globe to-day which cannot be visited as a holiday trip. Scarcely, however, has the wonder of the change been fully felt, than a greater power is manifested, destined eventually to supplement the strength of steam. The motor car has domesticated speed, has taught us the delight of motion, and added a joy to life which is a distinct asset to existence. For the motor-driven vehicle has come to stay, and must in the end supplant all other means of locomotion. At first it has aroused the enmity of the conservative, but that feeling will be as short-lived as the early enemies of steam. I recall a man occupying a great position, who was able by his influence to avert the misfortune, as he held it, of a railway coming within ten miles of his house. To-day when his descendants have to drive those long, weary miles, they execrate the prejudice which has thus divided them from the outer world.

It is a little wonder, therefore, that motoring has become a favorite means of locomotion among women, whether it is in the roomy, powerful car which annihilates distance in the country, or the electric brougham threading its way noiselessly, save for the toot of the horn, in and out of the traffic of London's crowded streets. It is certain that women have succumbed to the fascination of the horseless carriage. Even those among them who are keen horsewomen, although they may pretend to be less enthusiastic for the new means of progression, have sufficiently realized the advantages which motoring has to offer, to lead them to use the car to go to the distant meets of hounds, and to take their guests to the covert side.

The Ladies' Automobile Club of Great Britain and Ireland is the first of its kind that has been started, and during the short term of its existence, has achieved a great success. It numbers most of the prominent motorists as its members, and the first meeting of the club took place in London this summer, and attracted the attention of the King and Queen, as well as a crowd of spectators. The ladies in their cars drove slowly past Buckingham Palace.

King Edward and Queen Alexandra appeared on the balcony to watch them with much interest, and the Queen, who is an enthusiastic photographer, had her camera ready for use. The craze for motoring has attacked this royal lady, and she has become a motorist of no small renown, and has received instruction as to driving both electric and petrol cars.

Comparatively few, however, among the lady motorists are thoroughly expert in the knowledge of the inner mystery of the car, and independent enough to drive themselves.

One of the most daring is the Duchess of Manchester, who steers the car along the Irish roads at a speed far exceeding the legislative limit. She understands her car in a professional way, and can execute road repairs as well as a chaffeur, and fears neither the man in blue nor the difficulties of the road. As yet fortune has favored the brave, and she has escaped serious accident. Quite recently she made a long run across Yorkshire, and arrived at Harrogate in excellent form, and at a most unlawful speed. Her children often accompany her on these trips, and her intrepidity has excited considerable notice.



THE DUCHESS OF SUTHERLAND AND LITTLE DAUGHTER IN HER MOTOR CAR—PHOTO TAKEN SPECIALLY FOR MOTOR. THE DUCHESS IS THE MOST PROMINENT WOMAN MOTORIST IN GREAT BRITAIN, PRESIDENT OF THE LADIES' AUTOMOBILE CLUB, THE FIRST ORGANIZATION OF ITS KIND IN THE WORLD

Consuelo, Duchess of Manchester, although she motors and is on the committee of the Ladies' Automobile Club, prefers the services of a chauffeur to driving the car herself. She is fond of horses, and has not yet entirely transferred her affection from them to the motor vehicle.

Among the committee of the Ladies' Club is to be found the Duchess of Marlborough, but the intricacies of the motor and its mechanical construction do not appeal to her. She motors a great deal round Blenheim, but takes no responsibility as to the control of the car, and although she owns an electric brougham, she is

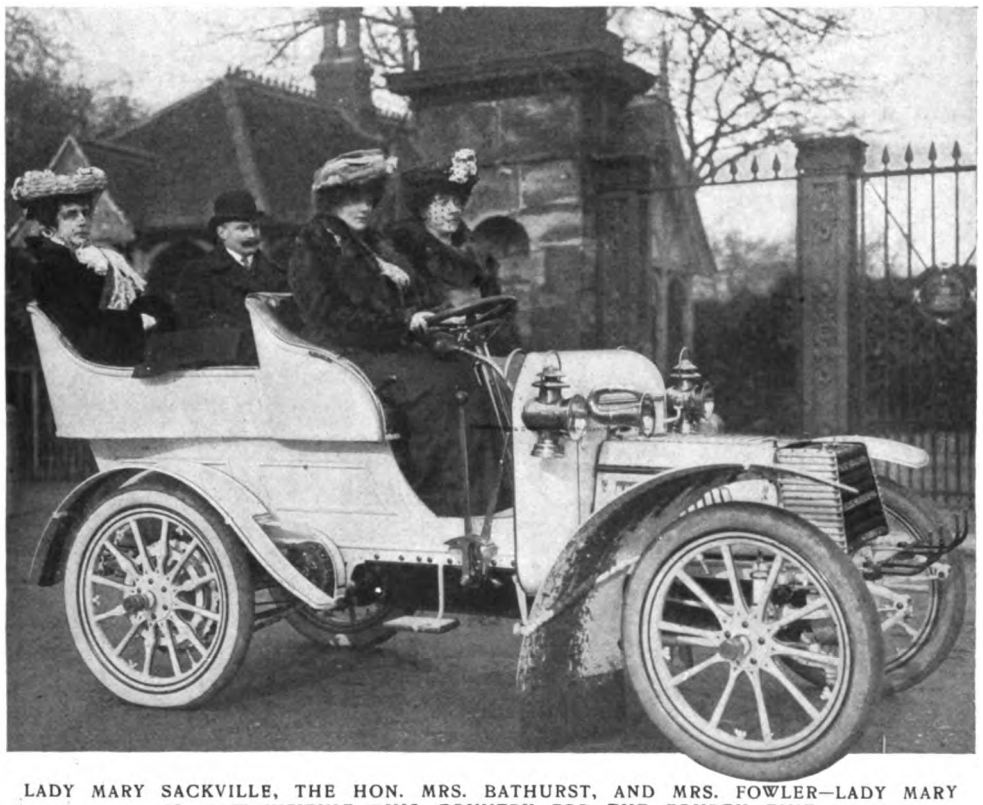
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more often seen in London in a carriage drawn by splendid horses with trappings of silver and of red.

The latest American Duchess, the young Duchess of Roxburghe, has hardly been long enough in England to have become noted as a devotee of motoring, but she says that she finds her car of great service in the neighborhood of her Scottish home, and makes constant use of one, both in paying visits and in driving long distances in the northern country. Another charming American, Lady Dufferin, would probably be a keener motorist but for the fact that Lord Dufferin is so enthusiastic a cyclist. Nearly every day, when in London, he may be seen threading his way citywards on a bicycle, amid the traffic, in a thoroughly expert and workmanlike manner. On their Irish estates, Lord and Lady Dufferin have found motors very useful, and their enthusiasm is likely to grow in this direction.

The Countess of Leitrim may be said to have become a motorist, principally by recognizing the practical value of the car in Ireland, as the best means of covering the distances between her home and the nearest railway station.

Mrs. Adair, whose beautiful castle is situated at the head of one of the most lovely lakes in Ireland, has many motors in use for the convenience of her guests, and is enthusiastic as to their value in a country where, hitherto, it has been difficult to see the beauties of the land, owing to the immense distances that have to be traversed. But among English women, the Duchess of Sutherland probably leads the way as a motorist. She is president of the Ladies' Automobile Club, and an active worker in every way that furthers the interest of motoring. Round Dunrobin Castle, her Scottish home, she is a familiar figure, clad in a neat costume of Scottish tweed, driving her car and generally accompanied by her little daughter, who, by the way, is always dressed, when motoring, in a serge frock and knickerbockers with leather gaiters.



LADY MARY SACKVILLE, THE HON. MRS. BATHURST, AND MRS. FOWLER—LADY MARY IS NOW VISITING THIS COUNTRY FOR THE FOURTH TIME

Her sister, Lady Warwick, is also an ardent motorist, and a member of the club. She has, however, had a distressing experience. She was returning in her car to Warwick Castle late in the evening, after dining with friends in the neighborhood, and had neither veil nor goggles. Her eyes suffered so seriously that she was nearly blind, and had to be in the hands of specialists for some time; but it is likely, now that all danger is averted, that she will re-enter the ranks of lady motorists.

Another lady who has, as a general rule, abandoned the train in order to travel by motor is Mrs. Bernard Wegulin. She was one of the first ladies in England to ride a bicycle, and, as may be easily imagined had to run the gauntlet of severe criticism. This, however, she outlived, and no one is more amused than Mrs. Wegulin herself now that nearly every Englishwoman possesses a bicycle, that it was she who braved the scathing remarks about unwomanliness which were made at her expense in the early days. It is not to be wondered at that she easily fell under the fascination of motoring. She became an adept in the days when the appearance of a car attracted attention in town and country, and she is one of those ladies who are never satisfied until they are thoroughly acquainted with the structure and the working of their cars. She has ridden so many miles by motor that she laughingly declares "People do not believe me when I tell them how far I have traveled." Forty thousand miles is said to be somewhere near the mark.

The Hon. Mary Portman, daughter of Lord Portman, is not only an enthusiast, but she must be ranked among the experts. She drives her car along English country roads, but does not fear the more mountainous and difficult highways of Scotland. An eighty-mile run is no uncommon occurrence. She had some difficulty in persuading Lord Portman, who is a great lover of horses, to taste the joys of motoring, but she has succeeded to the extent of inducing him to number some cars among his possessions.

It is an indication of the growing popularity of motoring that not a few brides have numbered motors of various descriptions among their wedding presents, notably Lady Denman and the Countess of Kintoul. Lady Dudley will be remembered as the first vicerine of Ireland who accompanied her husband on tours in many parts of the country almost inaccessible by railway. She determined when she first went to Ireland that she would make herself acquainted with the real life of the people, and many is the hamlet through which the Viceroy's motor has rushed to the astonishment of the inhabitants. When the word of command has been given, and the chauffeur has stayed its speed, Lord and Lady Dudley have made their way into the lowliest cabins, sat among the fisherfolk and with the peasants discussed their prospects and partaken of their simple meals. Lady Dudley has often declared that had it not been for the motor, it would have been impossible to have acquired any real understanding of how the Irish poor live. The only professional lady driver is Miss Dorothy Levett, who drove a De Dion car with great success in the Hereford reliability trials. She passed all the contests, with regard to understanding the working and repairing of her car, but was exempted by the judges from actually doing her own repairs during the trials, provided she instructed the workman who was with her, exactly what to do in case of accident. She acquitted herself so well that the prejudice at first felt among the drivers against her was transformed into admiration of her workmanlike skill.

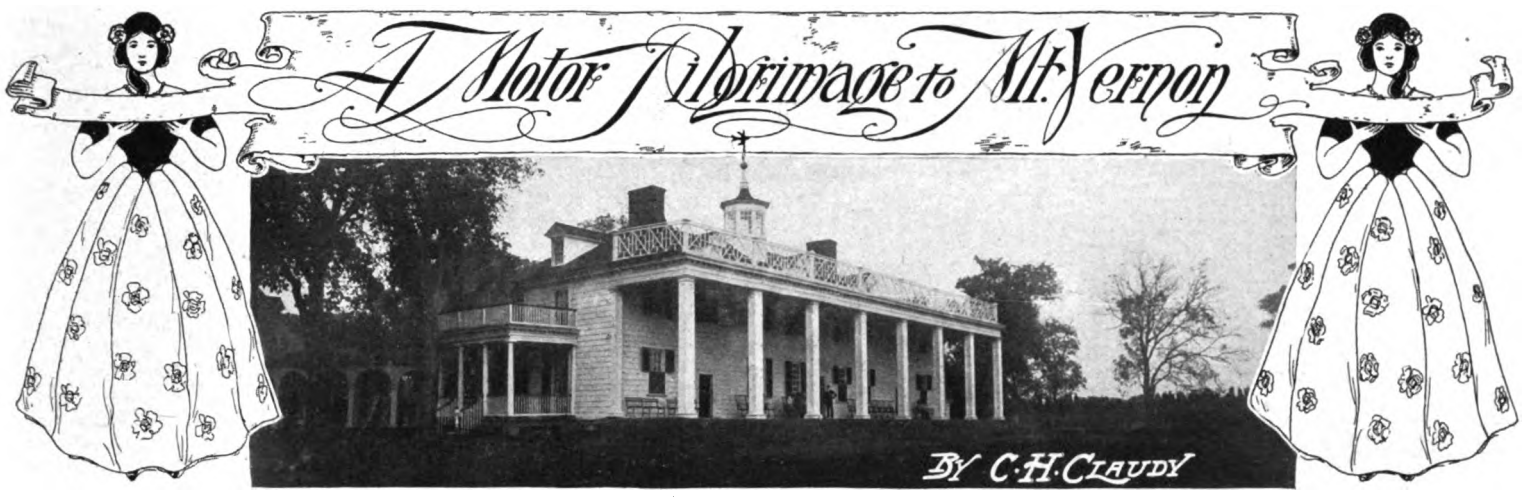
There is, however, no doubt that a strong prejudice still remains in the public mind against the motor car. We read now as we did in the early days of the way in which the peace of rural England is rudely desecrated by the rush of the automobile, of muffled humanity tearing through space, dressed to look like deep sea monsters, raising stifling clouds of dust, caring for nothing, seeing nothing, only rushing onward.

When I was in America, I visited one of the densely populated cities. Grim and hideous the factories towered to the skies, for man has defaced nature in the new world almost more effectually than in the old. Toward evening, a friend asked me to go by electric car to a distant suburb, and I consented. The car was packed to suffocation, but, as we moved out of the city, each stop lightened our burden.

Suburbs will not necessarily mean rows of monotonous houses, with the bay window, the same door, reproduced with wearisome reiteration, but it will mean that villages will revive, and country life will be linked to the opportunities and the work of the city. So I believe that this change of locomotion has come as a beneficent gift, not to the few, but to bring happiness and health into the lives of thousands.

Gabrielle Ravenel

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Of the roads leading to Mt. Vernon, Va., from any other starting points than Washington, D. C., or Alexandria, Va., the present scribe knows nothing. Nor, if they be of the ilk of those over which he traveled to get the accompanying photographs, has he any desire for further knowledge. Nevertheless, in spite of a trip which for roughness and toughness can hardly be surpassed, I am only too thankful of the opportunity to lay before the motorists of the country the state of so-called roads in Virginia, and the national disgrace which allows the approach to the most sacred spot on American soil to be worse than those leading to the gambling hells and other places that dot the Virginia river bank near Washington. Of course, there are worse roads. There are path indications called roads which take a motor car an hour to negotiate a mile; there are tracks which require a derrick, a team of horses, and crowbars to extricate unfortunate machines every hundred yards; there are places where motorists go never intended to be acceptable to the motor car. But these are conditions which the motorist faces with his eyes open. For a road which is in use, is supposed to afford a means of communication between one place and others, and is traversed by teams loaded with produce of one sort and another, there are few, if any, worse than that which connects Washington and Mt. Vernon.



The home of Washington was resurrected from the clutches of time and decay by a noble association of women, calling themselves the Ladies' Mt. Vernon Association. These patriotic women have cleaned up the place, repaired and restored it, partly furnished it throughout with the precious heirlooms which have been treasured in revolutionary families, and thrown open to the visiting public the home of Washington as nearly as possible as it was in Washington's time. There is little, if anything, that money, pains, time, and love's labor could do which has not been done, and the result is an educational factor for thousands yearly and an inspiration to patriotism not equaled elsewhere in this country.

This being the case, does it not seem that a national road would be a small gift for the National Government to present to the Association, the State of Virginia, the country at large, and the people who love and revere the memory of him who was first to America and Americans? Here is opportunity for someone.

But I must not exhort too much. Read, if you have time,



THE TOMB OF WASHINGTON: THE WHITE SARCOPHAGUS CONTAINS THE REMAINS OF GEORGE WASHINGTON; THAT ON THE LEFT HOLDS THE REMAINS OF MARTHA WASHINGTON, WHILE FARTHER BACK OTHER MEMBERS OF THE WASHINGTON FAMILY ARE BURIED

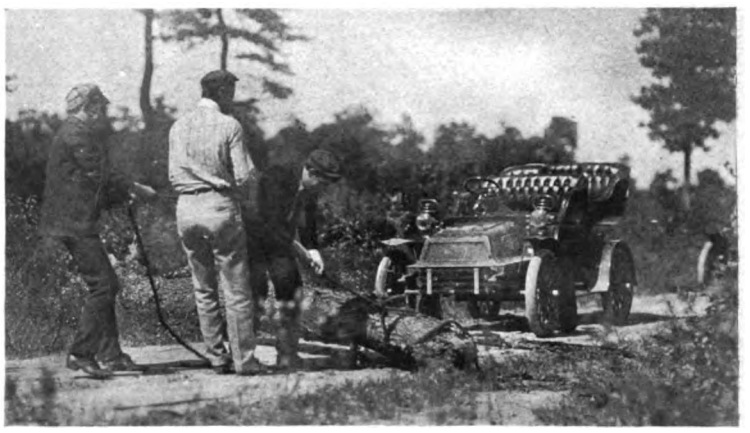
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OUR FIRST STOP WAS AT ALEXANDRIA, VA., IN FRONT OF THE CHURCH IN WHICH GEORGE WASHINGTON ONCE WORSHIPPED

of what you must do and bear would you go to Mt. Vernon by motor car; look, anyway, at some of the pictures, and then, if it lies in your power, say a good word for the cause of good roads in general and this road in particular to someone in power—write a card and send a copy of this story to your senator and representative; it may do a little good; it can do no harm, but it is certain to produce some sort of a result if enough of you do it! To my tale.

We started, four of us, from Washington in two cars, a Pope-Hartford and a Pope-Toledo, at 10:30 a. m. We had pumps and tools, tires and kits, several cameras, a few bottles of necessary restoratives, and a rope. My friend Hough said the rope would be good to eat if we were stalled, but we put it to a better purpose later on. We bowled through the city as slowly as the speedometer-cops would allow, crossed the old Long Bridge in a cloud of dust, missed a few mules by enough to save their lives, and proceeded to get into trouble by trying to straddle a mud puddle which looked as if it might have a bottom somewhere, but— After getting the water out of our hair and eyes and beards and finding we were still somewhere near the strip marked out as road, we put on the high speed and flew along. From the Virginia side of Long Bridge to Alexandria we were treated to a succession of magnificent thank-you-ma'ams, giving me the premonitory symptoms of heart-disease lest all my plates and lenses mix together in one heterogeneous mass of splinters. The "road" here is much traveled by brick carts, and the result to Virginia red clay and black loam—the two materials most in favor here-



HOW THE OBSTRUCTION WAS REMOVED

abouts with the road-makers—is somewhat trying to the nerves of anyone who would progress more than a mile or so a day.

However, we reached the outskirts of Alexandria without any mishap more serious than a plentiful bespattering of ourselves and our possessions with mud and water, and made, with as straight a bee line as our somewhat hazy memories would let us, for the Washington Church. To strike the streets of Alexandria is to pity. They are not cobble stones, nor concrete, nor new nor old metal, nor macadam (not by a good deal); neither are they dirt, nor wholly rock, nor any shell. It is easier to say what they are not than what they are, but at a venture I would assert they are made of the left-over scrapings of all the roads ever built anywhere. Boulders and rocks, dirt and mud—we had more trouble holding ourselves down when going through Alexandria than on all the rest of the trip, save in one place, of which more later.

After some looking around, we found the church in which the "father of his country" worshipped. This was the first stop. The second was a quarter of a mile farther on, to inquire the road. We left the little country roadhouse—country, although on the edge of Alexandria—and after cranking up, started on the real run of the day.

"Straight ahead, first turn to the left, and you strike the Mt. Vernon pike," we were told. "Pike" indeed! We struck it without trouble, such as it was, and right here our troubles began. First it was rubble, stubble, and trash. Then stones, bones, and groans. Next we were served with ruts and holes; then with holes and ruts. From side to side Hough jerked the car, seeking a "soft spot," but nary a one was to be found. We tried the ditch; we tried the bank; we skirted hazardous mud holes; we bumped fearsomely down places that looked competent to wreck any motor car ever built. Sometimes on the high speed the car would buck, the engine snort and the



THE RESULTS OF AN OVER-NIGHT STORM



WATER-COOLING FOR TIRES ON THIS ALLEGED HIGHWAY.

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A PIECE OF ROAD JUST REPAIRED "VIRGINIA STYLE"—TWO MILES IN TWENTY-FIVE MINUTES WAS OUR RECORD

muffler—which had a sound like a Hotchkiss gun, anyway, when open—would fairly deafen us, and we would know something would happen in the stopping line if we didn't let up. Off would come the high, in would go the low, and with a whirl and a whiz all out of proportion to the speed we would crawl out of the hole like a gigantic red cockroach stepped on by an elephant, and go hooting on our uneven way. Sometimes the car would stop short. The motor would spit along merrily, as if it hadn't a care in life, only to be brought up, all standing, with a sudden application of the clutch, when after snorting with extra force, it invariably pulled us out and set us going. It is a great credit to both cars, but more especially to that with the single cylinder, that never once, spite of water and mud, and nearly standing on our heads, and boulders and ruts and the rest of it—never once did either motor stop except when requested, and then were always to be started with an encouraging word—and the lever. It sounds ridiculous to the non-motorist, of course, but anyone who has



THE OLD MANSION AT MOUNT VERNON REPRESENTS FAULTLESSLY THE COLONIAL STYLE

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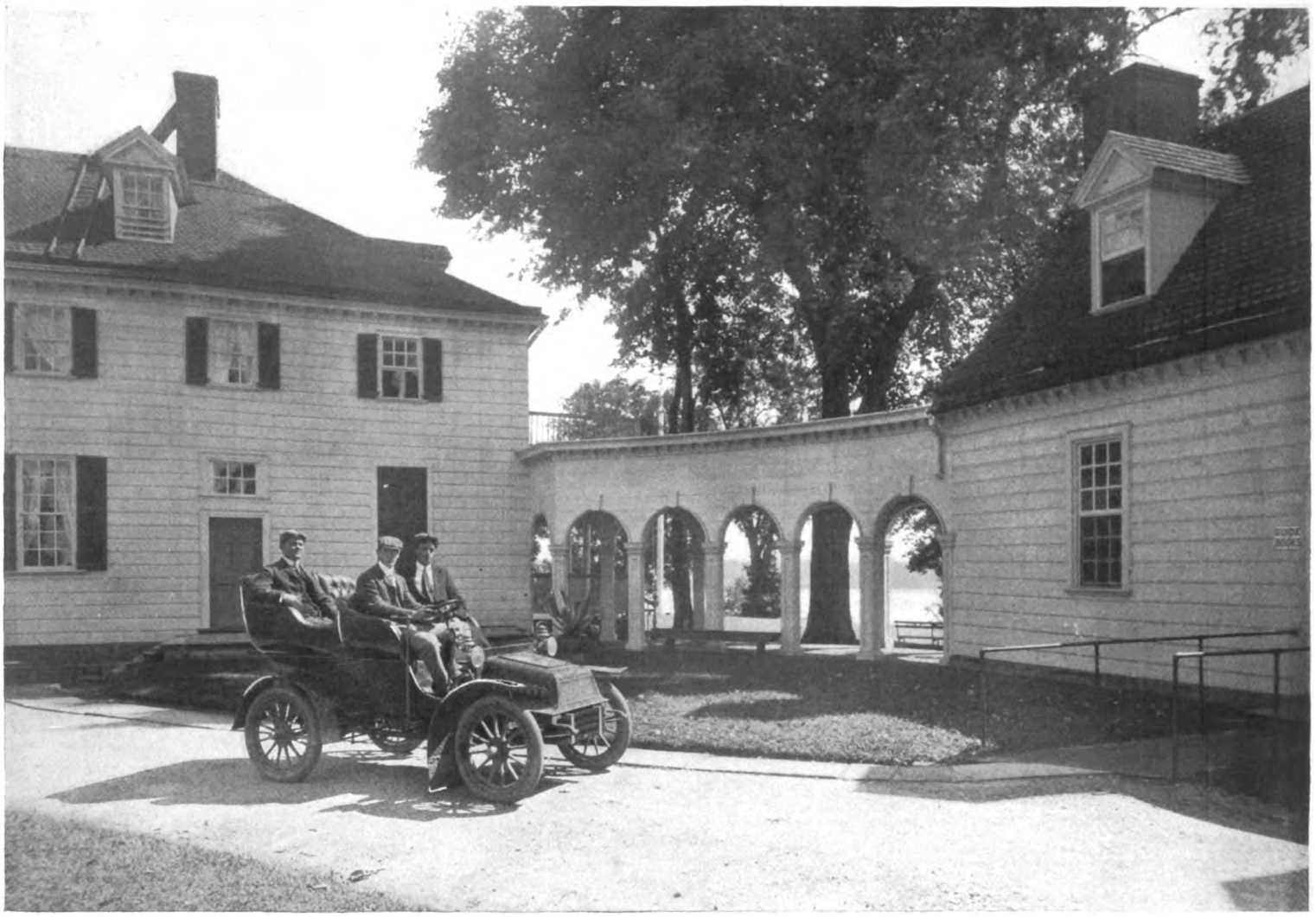
VISITORS ARE NUMEROUS TO THE OLD MANSION

ever watched a plucky little motor work straight ahead in the face of unheard-of difficulties and experienced its getting there and getting back, will testify that a motor has a personality, really arrived—although I am sure no one would have believed us if we hadn't had the pictures to show for it.

All good things must come to an end in time, and so did this trip. Leaving Alexandria, we took another road, which runs by Arlington, the Nation's burying ground, and the road this way leaves little to be desired, except the last quarter of a mile, which is unmentionable. It's a little out of the way, and brought us into Washington at the wrong end, but we made time on the "long way home."

It is over twenty miles, and we went down in three hours and came back in a little over two. You see, when we struck any kind of a road that offered a grip for the wheels, we fairly flew, regardless of the car, the cameras, or any tender anatomies. We came through without a mishap, and if I could tell you the excitement that trip caused in local motoring circles, you would wonder that we did.

It was a hard, rough, tough, thoroughly enjoyable trip, and I wouldn't have missed it for anything—no more would Hough nor the others—and we are ready to do it again, some other time. If you want smooth riding: take the boat. If you want to test your machine, or would like to see for yourself



THROUGH THE ARCADE THE BROAD POTOMAC IS VISIBLE, AND MANY REACH MOUNT VERNON BY BOAT

to be talked to and sworn at quite as if it were another human member of the party.

Well, what more can I say of the roads? The pictures, bad as they show the roads, cannot do them justice—I didn't take the worse ones. Why didn't I? Well, for one reason, while I have no objections which cannot be overcome to wading round to my knees in mud and water to take a picture of a motor car swimming to Mt. Vernon, I do object when it is required that I swim, too! Also, there be some spots on that "pike" where it was nip and tuck whether we got through or remained and rotted where we were, and even patient Hough drew the line at stopping for a picture when to get started again would have been so risky a proceeding.

Of course, we had incidents and adventures, of a mild character, in plenty. Not far from Mt. Vernon, we were brought to an abrupt stop by finding a heavy tree, blown down by the high wind of a day-old storm, directly across our path. "Here," said Hough, is where we use the rope."

When we arrived at the Mansion we had to solemnly parade through the gate, to make the turnstile tally, and then as solemnly paraded out again, to get in the machines and enter the grounds. The various pictures speak for themselves—we what the nation should do and hasn't, by all means go in your motor car. But do not say you went unprepared as to what you would have to expect.



THIS WAS THE WORST STRETCH OF ROAD ON THE TRIP

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AT CHATEAU THIERRY THE CLIMBING WAS CONFINED TO TOURIST CLASSES

TWO HILL-CLIMBS IN FRANCE

By Monsieur Carbureter

PARIS, Nov. 15.—A speed of 77.12 miles an hour uphill where the grade attains in some sections 11 per cent. is considered fast going. This is what Rigolly, with a Gobron-Brillié heavy car, and Baras, with a Darracq, accomplished in the October contests on Gaillon hill. The occasion was the sixth annual hill-climbing tournament, embracing a long list of categories, this being the most important event of the kind held in France.

Gaillon Hill is on the old thoroughfare leading from Paris to Rouen, and is fifty or sixty miles from Paris. The length of the contest is 1,000 metres (one kilometre), equivalent to five-eighths of a mile.

Principal interest was, of course, centered in the contest of the "big ones." Baras and Rigolly captured the honors from a very formidable lost of competitors, each covering the kilometre in 29 seconds. Macdonald, who came over from England with a Napier, ran them very close, as his time was only two-fifths of a second slower. Achille Fournier ("Hen's" brother) drove a Hotchkiss, his time being :32 3-5. The other aspirants, with respective times, were: Le Blon (Hotchkiss), :33 4-5; Pelser (Gardner-Serpollet), :36 1-5; Chanliaud (Gardner-Serpollet), :40 1-5; Faure (Mercedes), :42 4-5.

Remarkable time was accomplished by Lanfranchi, with a Peugeot motorcyclette. He covered the kilometre in :29 3-5, establishing a new record by a margin of about 12 seconds.

The Darracqs were first in the voiturette and light motor car categories, besides the tie for first place with the Gobron-Brillié in the heavy category.

Among the "tourists" (at fifty to sixty miles an hour), Pelser, with a Gardner-Serpollet, won in the price category of 12,000 fr. to 15,000 fr.; Cuchelet (Peugeot), 15,000 fr. to 18,000 fr.; Rulot (Gardner-Serpollet) 18,000 fr. to 25,000 fr.; and De Lareinty-Tholozan (Mercedes) over 25,000 fr.

At this "reunion," contrary to the records of previous years, nobody was killed. A man on a motocyclette collided with a big motor car and had his leg broken, thus furnishing a mere incident, but one not at all comparable with the accidents that unfortunately have been the rule heretofore at Gaillon.



RIGOLLY AND THE BIC GOBRON-BRILLIE CLIMBING GAILLON HILL AT RECORD SPEED

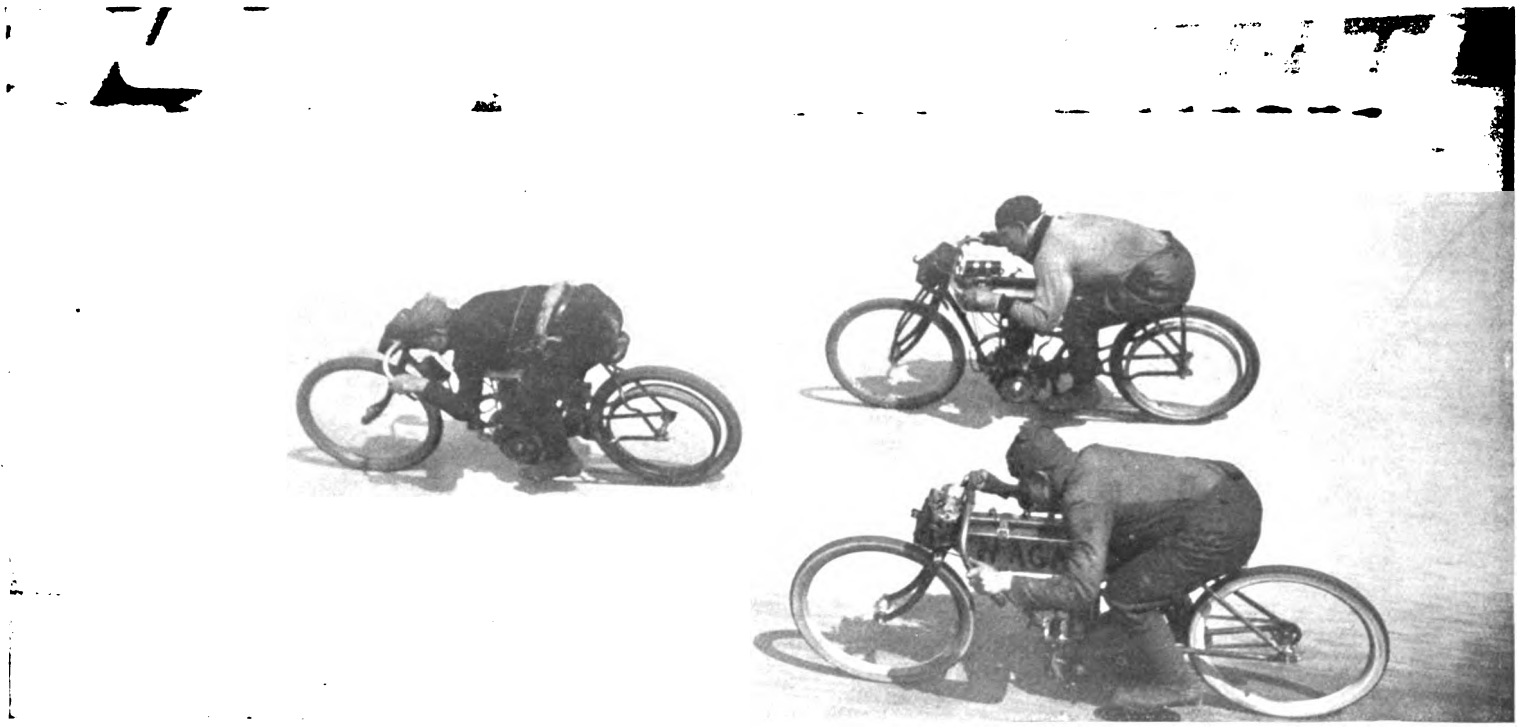
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GAILLON IS A QUAINT OLD TOWN—CUCHELET IN A PEUGEOT

typed in all French printing shops and kept ready for use in the same box as "l'Amerique," "Etats-Unis," "Johnathan," and various other dubbings relative to the country where motor cars ought to be running on streets paved with silver coins.) —some time, I say, since they returned, but their remarks are still fresh in my memory, for the reason that they prompt one to ask: Have any sportsmen ever gone abroad for a contest and returned even fairly well satisfied?

Albert Clément said that but for Mr. Vanderbilt the race would never have been held, and that the enthusiasm of the popula-



MOTOCYCLE CONTEST ON THE PARC DES PRINCES TRACK IN PARIS—ANZANI, WITH AN ALCYON, WAS THE WINNER

The Chateau Thierry hill was abandoned as the climbing course for the racing category. The October contests held there were exclusively for "full-rigged" touring machines only. The Gardner-Serpollet steam machines, after having apparently "lying dormant" for some time, awoke, as did Rip on another famous hill, and beat the entire crowd. They won in four classes, namely, according to catalogue prices, 4,000 to 8,000 fr., 8,000 to 12,000 fr., 12,000 to 18,000 fr., and 18,000 to 25,000 fr. In the class for machines worth more than 25,000 francs, the Mercedes machines were first and second.

It is some time now since the French chauffeurs returned from the land of dollars. (This expression, "lands of dollars," is stereo-



BARAS ASCENDING GAILLON IN THE DARRACQ WITH WHICH HE TIED RIGOLLY

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tion for the event was not remarkable. The road was bad, and he had no opportunity of properly trying the course before the race.

Gabriel said that Mr. Vanderbilt had to pay out money right and left to all persons who came to him and made complaint under the pretext that the race would paralyze their industries.

Teste also complained of not being able to thoroughly try the course. In his opinion, America is not the promised land for such contests. As for those annoying little items known as expenses, Teste says that living over there is not for nothing, and that he and his compatriots had some experience in that line.

On this latter point I can make no very direct comments, for the reason that I really don't know whether



RULOT AT CHATEAU THIERRY—THE "STEAM KING"

illæ lacrimæ" when they returned to the United States.

The *Auto,* of Paris, said that the decree of the Supreme Court in rejecting the application for an injunction by the Association Farmers was very much discussed.

The *Echo de Paris* said that a part of the population showed itself very hostile to the race, and the contestants remaining in the race after the first two were unable to finish. The defeat of the American machines, the editor says, only augmented the bad humor of the crowd. He also says that M. J. K. Vanderbilt, giver of the cup, didn't start.

The *Liberté* says that the superstition with regard to No. 13 is much stronger in American than in Europe.

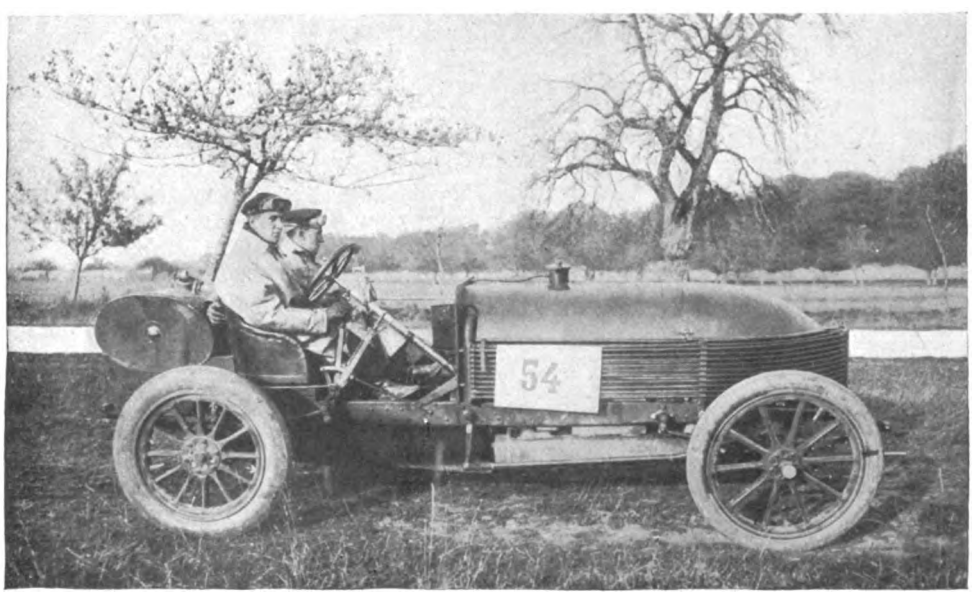
The *Humanité* said that the start was made at Westburg,



FRENCH MOTORING COSTUMES OBTAINED AT THE GAILLON CLIMB, THANKS TO SOME ACCOMMODATING VISITORS

Teste and his compatriots, while living in Paris, have rooms at the Ritz and take all their meals at the Café de Paris or one of the twenty other restaurants at which the good meal is always $5 per head and the minimum eatable one is $3.

No, I think it's a hopleless case of international trouble and dispute. Winton et al. came to France for one of the cup races and went to England for another, and, if I mistake not, they were very "hinc



MACDONALD AND THE NAPIER COMPETITOR AT GAILLON

but the *Intransigeant* (M. Henri Rochefort's paper, the cabmen's fireside companion) said that it was at Westhury, also that thousands of people more or less hostile lined the course.

The *Twentieth Century* said that the Supreme Court decided that the race was not contrary to the Constitution.

The *Petit Nicois* of Nice, said that the auto of Mr. Brocard, which was a Renault, broke its axel. Other news flowed similarly.

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VARIOUS REMEDIES FOR TIRE VEXATIONS

By Igniter

The care and repair of tires is a matter with which every motorist should be familiar. Not only do tires constitute the most vulnerable and oftenest-injured portion of motor-car mechanism, but an additional reason why unfamiliarity with their ills is inexcusable is that the subject is one not at all difficult to master.

The manner in which a tire is used and cared for has everything to do with the length of time that it will last. It is not by any means the case that a given tire, on a given vehicle, run a given distance over given roads, will always give the same service. To go one hundred miles at a forty or fifty-miles-an-hour rate will damage tires several times as seriously as covering the same distance at a rate of fifteen or twenty miles an hour. Careless application of the brakes, and rapid accelerating or sudden retarding always are bad—how bad, few motorists realize. Unnecessarily bringing a car to a sudden stop often is responsible for injury to the tire tread that would not have come from many miles of careful running. The brakes of a car never should be used when their use can be avoided. Their purpose is that of a safeguard rather than a convenience, and nothing but ignorance approves their violent application every time it is desired to bring the car to a standstill, which causes the tires to be scraped and ground over the abrasive surface of the average road—an abuse that is many times as injurious as the smooth, rolling contact that constitutes legitimate use.

For reasons that need not be dragged in here, tire makers seek less to render their tires proof against injury than they do to render them easy to repair. Great progress has been made in this respect, and there exist all sorts of appliances for patching, bandaging, plugging, revulcanizing, solutioning, and otherwise repairing the various injuries from nails, sharp stones, glass, etc., which inevitably come to any tire in time. Consequently, while it is well for the motorist to avoid tire troubles when he can, it also is well for him to be prepared fully to meet them when they come, and the purchase of a well-equipped repair kit, and close regard to the directions that come with it, are to be recommended.

Fully to understand the care and repair of tires, it is well first to know something of their construction. The construction of the average tire being anything but complicated, however, this fact should worry no one.

Most manufacturers—though there is a dissenting minority with excellent arguments—hold that to make a pneumatic tire so thick, or stiff as to render it puncture-proof is to defeat its purposes. Their idea is that the thinnest casing that will retain the compressed air, and is consistent with the necessary degree of durability and strength, is best.

Inner tubes are made of highly-elastic rubber, about an eighth of an inch thick, and are quite impervious to air, but of no great mechanical strength, strength being neither necessary nor desirable in an inner tube. When reinforced by the walls of the stout outer casing, however, the interior of which it fits very perfectly, it is safe to pump the inner tube to a very high pressure—from fifty to one-hundred pounds to the square inch.

The intelligent use of tires presupposes two things—maintenance and repair. Concerning the latter, it is well to state here that replacement always is preferable to roadside repairs, and that by all means a wise plan is to carry extra inner tubes and an extra casing, so that these can be substituted for any that may be injured during a trip, and the injured ones brought in to be repaired at leisure, with all possible facilities at hand. Three or four inner tubes occupy little room in a toolbox, and it generally is possible to carry an extra casing somewhere.

Proper maintenance consists in the religious observance of every rule that possibly can conduce to tire life. Under no circumstances should be rims be permitted to become rusty, for rust, especially in connection with moisture, is a serious enemy of fabric and rubber. Whether it is thought to be needed or not, tires should be removed from the rims at regular intervals, and thorough inspection for incipient trouble made. If the rims are rusty, or if the metal is so exposed as to be in danger of rusting, a thorough cleaning by the use of considerable elbow grease and a few pieces of emery cloth, followed by several liberal coats of shellac, the wheel being jacked up from the floor meantime, will be labor well expended. After the shellac is dry, the tire can be replaced with the assurance that at least one kind of trouble is not due to crop up for a while.



MOTORING ON A GOOD ROAD NEAR BUFFALO WITH NO TIRE VEXATIONS—A PIERCE PARTY

Tire casings, every so often, whether they have given out on the road or not, should be minutely inspected to locate small cuts and gashes, especially such as penetrate to the fabric. These all should be perfectly washed out with alcohol, and then filled up with tire solution, such as every manufacturer supplies in collapsible metal tubes. The casing must be allowed to dry perfectly after the washing and before the solution is applied; otherwise, a small quantity of moisture may be sealed inside of it, in which case rotting of the fabric certainly will ensue. If an inner tube leak, or is suspected of leaking, just enough air to distend it should be pumped into it, and then, by immersing it in a tub of water, any hole will be indicated by tiny stream of bubbles. Large leaks of course may be found by simple examination.

To repair leaks in the inner tube, after it is perfectly dry its surface should be roughened with a piece of sand or emery paper for some distance all around the hole, after which a patch of rubber is applied with rubber cement. To apply such a patch, after both it and the tube are sandpapered, smear a quantity of cement on each and wait from ten to twenty minutes, until the cement is tacky to the touch; then, the moment this condition exists, press patch and tube firmly together.

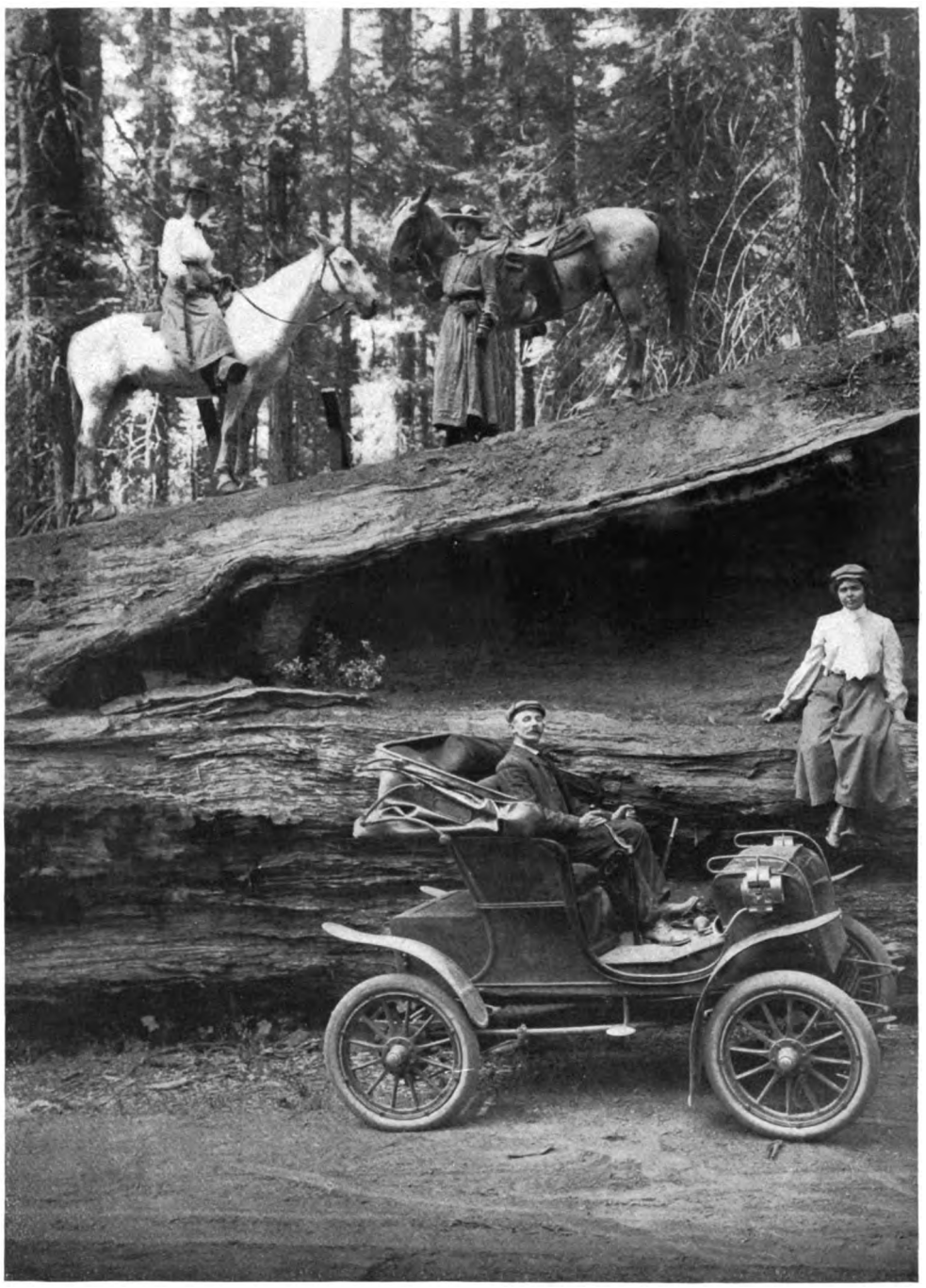
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IN THE BIG TREE COUNTRY

By F. A. Lathe

A trip into the heart of the Sierras, including side trips to the Mariposa Grove of big trees was, to me, one of the most interesting and perhaps the most trying trip that I have ever made. Leaving San Francisco on Sunday afternoon, a leisurely run to San Jose was made on the west side of the bay, taking in the suburban towns of San Mateo, Burlingame, and Palo Alto, the last named being the home of Stanford University, at which place a few minutes' stop was made to look at the University, and some of the fine residences about the place. Continuing the run to San Jose, a distance of fifty miles from San Francisco, the time consumed was 2 hours 15 minutes. Here another stop was made, to replenish the gasoline and get some light refreshments for the party. We at first intended to pass the night here, but, as we still had several hours of daylight before us, we concluded to make Gilroy for supper. The drivers in the station at San Jose did not speak very favorably of the road or our prospects of making it before darkness set in, but knowledge of the power and reliability of the little Stevens-Duryea, which we were driving, did not fail us, and we covered the distance easily in two hours, making our time from San Francisco, 4 hours 15 minutes and the mileage exactly 80 miles.

We passed the night at Gilroy, and getting an early start next morning, the roads being much better, we hit a good 25-mile gait, heading directly for the Coast Range Mountains, which loomed up ten or fifteen miles in the distance. The run to the top of the mountains, through Pacheca Pass, was grand in the extreme, the scenery being sublime. The roads were in first-class condition and the grades very light, so that we had no trouble in making the 25 miles to the summit in a little less than two hours. Arriving at the summit of the mountain, a beautiful panoramic view of the San Joaquin Valley spread out. The river of the same name, which has its head in the Sierras, dimly seen in the distance, winds its tortuous way through the valley, furnishing water for countless irrigating ditches that spread like a network of silver lines over the surrounding country as far as the eye can each. Many towns and villages can be seen from this point, and, if the traveler can get here at the rising of the sun, a never-to-be-forgotten scene is spread out that will live long in the memory of the lucky tourist.. The run from here to Madera is pleasant but uninteresting. The remaining hundred miles we covered in about six hours, arriving in plenty of time to give our machine a general cleaning and looking over, preparatory to an early start for the last stage of our trip to Sugar Pine, one of the largest of the lumber camps in the Sierra Nevada Mountains. The next morning, in company with E. H. Cox, the secretary and manager of the Sugar Pine Company, owner of the machine in which we were taking the trip, we started out, followed by the good wishes of an admiring audience of townspeople, who were much interested in our undertaking, and several of whom were making side bets among themselves relative to the estimate of time of getting there, or the possibilities of getting there at all.



F. A. LATHE IN HIS STEVENS-DURYEA, BESIDE THE FALLEN MONARCH

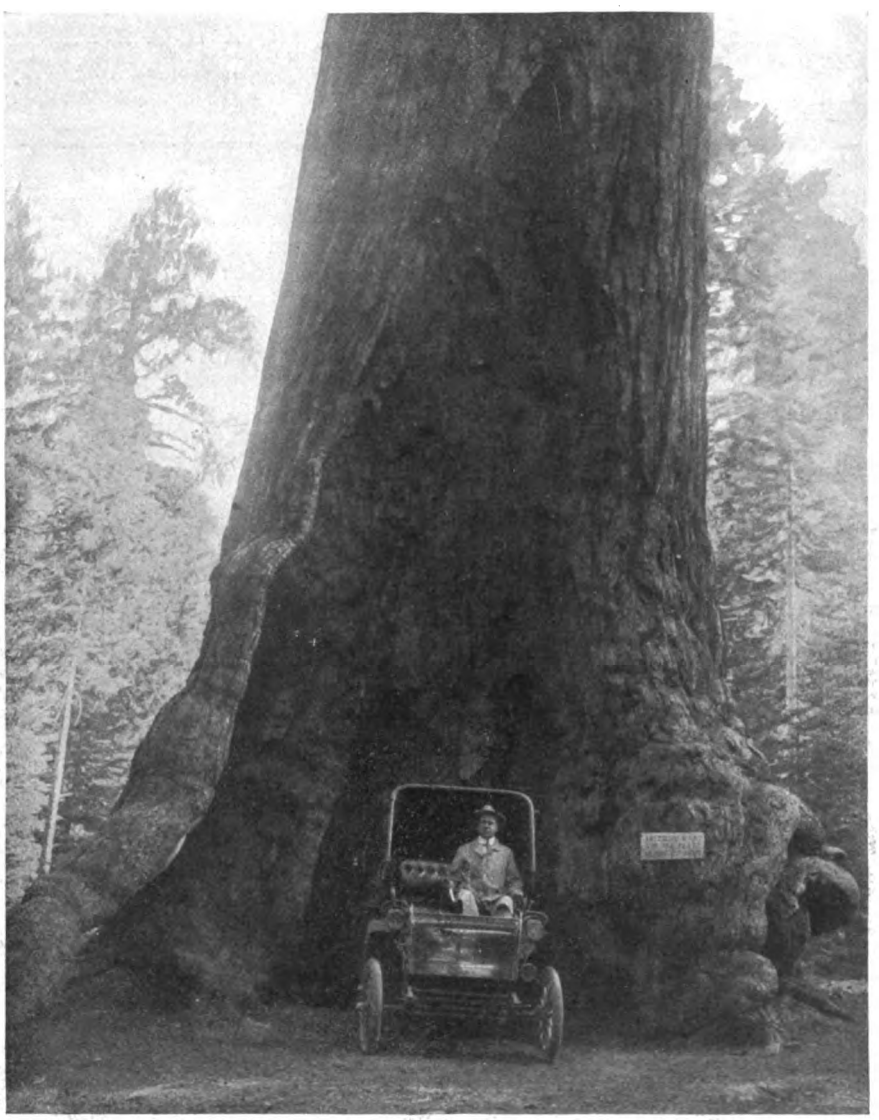
The first thirty miles to Redlands, which is the end of the Southern Pacific road to the Yosemite Valley, was made in 1 hour 15 minutes. Thus far, the road was very good, with little, if any, grade. The country traversed was very fertile and extremely prosperous, with the products entirely wheat and grain. Arriving at Raymond, the foothills became very much in evidence, and, looking at them from a distance, we made up our minds that the little machine had some very hard work before it. However, after taking in gasoline and oil, which, by the foresight of Mr. Cox, had been sent on ahead, we made a start with the good wishes of many of the old stage and pack drivers who make their livelihood by taking parties of tourists to the Yosemite Valley and Big Trees.

The motor car has not yet become familiar in this part of the country, and never fails to draw a crowd and elicit questions and remarks that create many a good laugh. Immediately upon leaving Raymond, the road made an abrupt ascent, and it needed all of our power to take us the first few miles. We made it, however, without mishap, and started our descent on the east side of the first range of mountains. From here on, the road was a continuous curve, and at the same time in many places a very steep incline which tried our brakes severely. I would not advise anyone to undertake this trip without brakes which could be absolutely depended upon. The roads were very narrow, and it was almost impossible to pass a team except at

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various points where the side of the mountain has been dug away for this purpose. The road being so very winding, you cannot see a team at all until you are close upon it, but we found, by experience, we could usually locate them by the cloud of dust along the mountain side which you can generally get a line on some distance ahead. What few teams we did meet we had little or no trouble with, the drivers usually being much more scared than the horses. The rocks and crags to one side are hundreds of feet in the air, and on the other side you look down upon the tops of tall trees that appear small shrubs in the bottom of the valley.

It must have been a difficult piece of engineeering to get the road into the heart of the great lumber district, it evidently being laid out with the idea of hauling heavily loaded teams to and fro from the valley. Except in rare cases, the grades are not particularly steep, probably not over 15 or 20 per cent., but they are long and exceedingly dusty and will try any machine to its utmost limit.



E. H. COX SIZING UP THE "GRIZZLY GIANT"—104 FEET IN GIRTH

We made Sugar Pine at about 4 P. M., our time being something over six hours for the 63 miles from Madera, which, considering the road to be one almost continuous climb, I think will prove to be a record for some time to come. Arriving at Sugar Pine, we secured the services of one of the men in the lumber camp and had removed the deposits of real estate which we had collected on the trip. After washing the machine, I looked it over carefully and found it in apparently as good shape as when we left San Francisco, 300 miles distant.

We spent several days in and about the lumber camp and in the woods, where the hardy, good-natured lumbermen did their best to make our stay pleasant and instructive. It is well worth the trip to see the way in which the great monarchs of the forest are handled and the wonderful skill and ingenuity with which the workmen reduce great trees in the space of a few minutes to marketable lumber.



IN A LOGGING CAMP—SUGAR PINE LOGS FIVE FEET IN DIAMETER FROM MADERA COUNTY

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THE GNARLED ROOTS OF THE "FALLEN MONARCH"—MRS. E. H. COX AND MISS RUTH DICKINSON, OF MADERA, CAL.

At an expense of nearly a quarter of a million dollars this company has built a flume from Sugar Pine to Madera, a distance of 65 miles, in which the boards and lumber are floated in a stream of water direct to the planing mills and box factory. Several people have made the trip down the flume astride of a piece of timber or in little V-shaped boats which are roughly constructed at the camp. It is on record that a party of women attempted the trip, but the outcome is not recorded; probably a good scare and a good wetting, if nothing worse.

One morning the campers suggested a run and picnic in the Mariposa Grove of big trees, which were about 20 miles distant, with a return trip by moonlight. The idea appealed to all, and a party was arranged, including Mr. Cox and myself with the motor car, the others of the party going on horseback. The route to the big trees is over the road traversed by the Yosemite Stage Company, and is consequently kept up in a very good manner so that we experienced no particular difficulty in making the trip. Photographs were taken at the big trees, which will give an idea of the immense size of these big monsters when shown beside something with which they can be compared. If anything, however, something of their magnificence is lost because of the presence of others equally magnificent about them. Could one of California's big trees be transported to a city street, where its girth would equal the width of the street, and its top would tower above the roofs of the tallest sky-scrapers in the world, I imagine that then the meaning of "big tree" could be really appreciated. Certain it is that one's first wonderment quickly gives place to familiarity when confronted with not one, but hundreds of trees averaging from 200 to 300 feet in height and ten to thirty feet in diameter.



THE TREE "CALIFORNIA"—ANOTHER WOODEN ARCHWAY OVER THE ROAD

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A MOTOR'S LEGACY OF ILLS

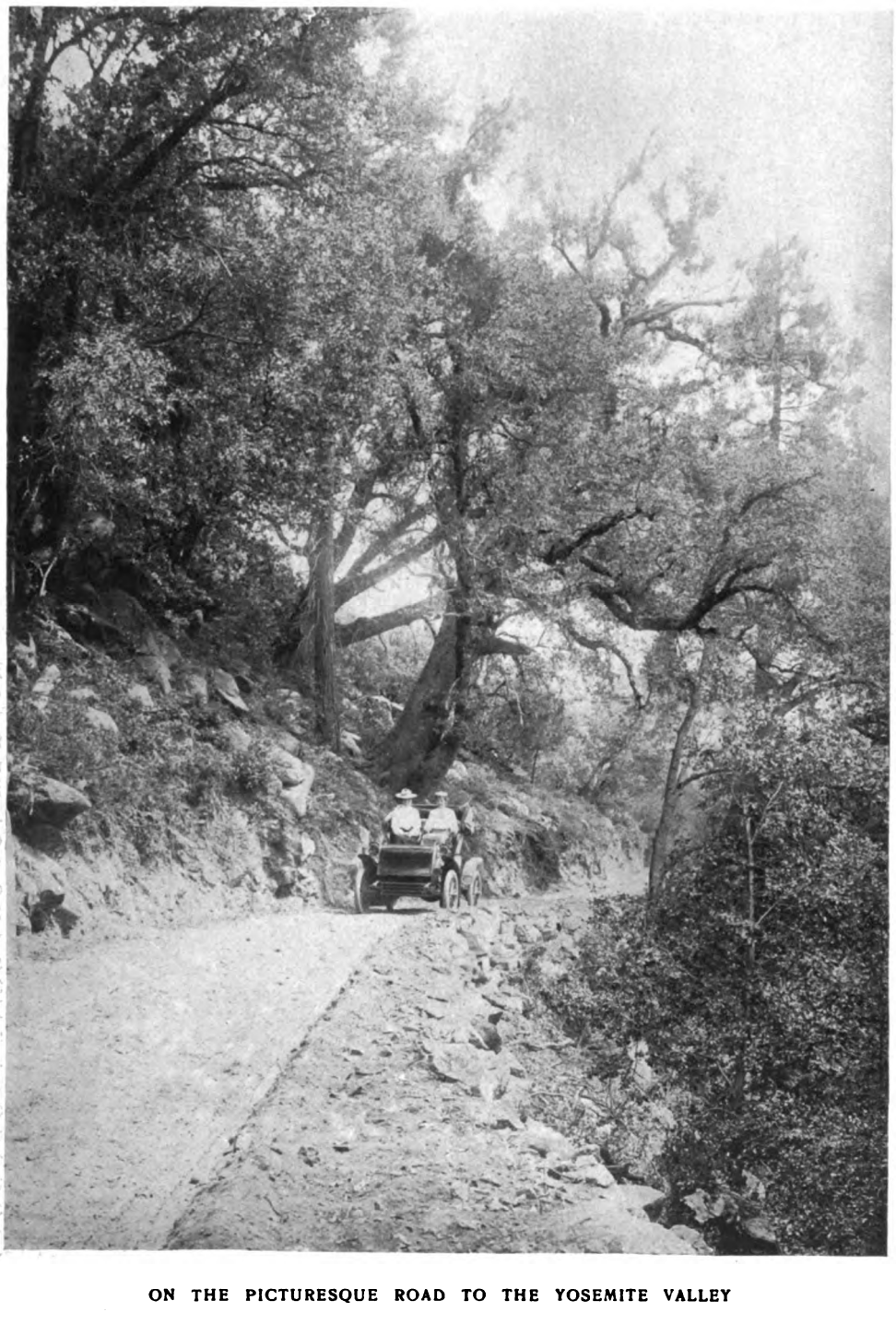
By Fred E. Dayton

A rotund little motor car whose style of dress and halting step, accompanied by a shortness of breath when ascending steep grades showed that it was rapidly accumulating advanced age, exhibited visible signs of infirmities. The present owner was a novice. There were those who said he must needs to have been; but that was not a gallant criticism. So, after a short run, accompanied by motor symptoms of illness, the little car was rolled into a repair shop hospital.

Urged to describe its ills, the little motor car began by saying that "it was tired all over." "My cylinders are bored to death," it remarked, "and my nervous system is shattered, and I don't take my nourishment regular. Only to-day I had a bad shock which effected my disposition and I have been cranky all day. There has been a watery mist over my needle valve eye for some time, and I lately have taken on an awful thirst, requiring copious draughts of water frequently. You wouldn't believe it, but I have been off my base very much with these changed road environments, and much of the time I have felt rocky—not at all like my old self. Why, it is several months since I have been sparking with my old-time fervor."

"How's your circulation?" inquired the blue jeans physician.

"Very bad," responded the poor little motor. "My brow gets hot and aches frequently. I had an awful poor winter, and felt more ethereal than material in dead storage. I didn't seem to revive with spring bitters and a vigorous massage of my shiny parts. My lamps were all gone, but my owner took me around to an accessory man, who fitted me with new lenses and a tail light, but even in my lackadaisical state it didn't take me long to discover that I was burning my candle at both ends. Before the season fairly had begun, I could hardly rotate."



ON THE PICTURESQUE ROAD TO THE YOSEMITE VALLEY

"Seems as though an operation would be necessary," said the chief surgeon, who had been listening while examining another patient suffering with inlet-valve throat trouble.

So the dissecting table was prepared. A piece of steel was grafted on under white heat pressure, and new wire ligaments were connected where necessity demanded. Sixteen gall stones and three machine screws were removed from the innards of the gear case, and new life was generated in the battery brain cells.

Though still an invalid, the poor little English body took on quite a spurt and brought a fair price, whereupon the owner was so pleased that he invested in a new, strong, husky car.

CARE OF THE MOTORIST'S HANDS

How do you keep your hands clean? This is a very hard question to answer if you are a motor enthusiast. There are several conditions, however, which, if understood, save much trouble in cleansing the hands after motor work. From experience it will have been noticed that the sole reason for motor dirt being hard to remove is the irregularity of surface to which it is applied. Cracks around and under the nails are the most difficult places to clean, next the creases on the fingers and thumb. Given a smooth hand, very little dirt will stick. Therefore, do all that is possible to keep the hands smooth. This is a cardinal point. To do this there are several points to observe, says the *Autocar*.

1. Remove the dirt without roughening the surface.

2. Fill up the interstices of the skin before the work is begun.

3. Avoid chafes, chaps, and rubs, *e.g.*, knocking the skin off the knuckles and exposure to wet and cold.

1. The answer to this question is: Avoid all coarse forms of soap; never scrape the nails with a knife; never use Sapolio, Monkey soap, or any alkaline substance whatever. Do not use petrol to wash the hands in; it coarsens the hands very quickly.

2. Gloves are uncomfortable to work in, so before beginning to work, rub the hands all over with a fine toilet soap, fill the nails and cracks round with it, and avoid contact with water till the job is over.

3. If necessary, wear gloves with the fingers cut out.

To clean the hands use warm soft water, good toilet soap, and a nail brush for the nails.

When it is important to have the hands perfectly free from black, as may be the case with a doctor, do not be too violent in the efforts to cleanse the hands perfectly. It is wonderful how a few hours seem to loosen the dirt.

It has to be remembered that ordinary oil plus metal wearings is purely a mechanical dirt, and does not dye the surface of the skin or in any way enter into chemical combination with it.

Perhaps the most important matter of all to attend to is filling the cracks and nails with soap before starting a job, and not wet them till the job is completed.

"Wear gloves" sounds well, but how many motorists can screw up a fine-threaded nut or cap with gloves on?

Smooth hands do not necessarily blister easily from use. The writer wears gloves and uses glycerine at night, and finds he cleans his hands more easily now than ever, provided he remembers to soap them before he works.

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THE GROWING SPEED OF MOTOR BOATS

By Duncan Curry

After months of waiting and endless experiment, it looks as though the hopes of the motor boat enthusiasts were about to be realized and that the 30-mile-an-hour boat was a fact and not a fancy. On the last Saturday of October, Frank Croker's 47-horsepower Mercedes boat *Xpdnc* covered a 136-mile course on the Hudson river at the rate of 26.29 miles an hour, and on the same day, over a measured knot, Commodore Harrison B. Moore's 175-horsepower boat *Onontio,* designed by Henry J. Gielow, traveled a nautical mile in 2:26, or at the rate of 28.36 statute miles per hour. Both of these performances are far in advance of anything heretofore accomplished on either side of the Atlantic, and go far to confirm my criticisms made during the summer that poorly designed hulls and not inefficient engines were largely responsible for the failure of the earlier boats to realize the hopes of their builders.

Motor boat racing and the building of motor boats is comparatively new on this side of the Atlantic, but in the short time that our engineers and designers have devoted attention to this sport great strides have been made.

The first real American motor boat to attract attention was the *Standard,* and it was some time before its record was beaten. The *Standard* last spring won the first series of races for the American Power Boat Association's $1,000 Gold Challenge cup, when she practically drowned out several of her competitors, heralded as world beaters, over a 32-knot course on the Hudson.

Then came the Smith & Mabley boat, *Vingt-et-Un II,* a 75-horsepower boat designed by Clinton H. Crane, which established a record for herself as being the fastest and most consistent performer of the season. While the *Vingt-et-Un* never beat the *Standard,* she won several runs, and at Newport made a record of 25.67 miles an hour over a 20-mile course in a rough sea.

Then there is the *Challenger,* another Smith & Mabley boat of 150-horsepower, designed by Crane, which, while unfortunate abroad, recently made a trial over the mile course in Hempstead Bay at the rate of 26.6 miles per hour.

Now all of these performances, good as they are, fade before the *Onontio's* wonderful knot in 2:26, which is equivalent to 2:04 for the statute mile. As few laymen realize what this means and the tremendous power, energy, force and speed concentrated in the bodies of these tiny motor boats, I would call their attention to the fact that a mile in 2:04 is at the rate of 42.5 feet per second. Or, in other words, the *Onontio* moved about ten city blocks every minute and for every tick of the clock or beat of the pulse her hull covered 42.5 feet. To do this, her wonderful motor was buzzing at a tremendous rate and twisting her propeller round 900 times every minute. This propeller is 30 inches in diameter, or a little more than 8 feet in circumference, so that the helicoidal path made by its shape is about 10 feet, and in 900 revolutions of the blades of that propeller covered a path of foaming water 1 7/10 miles in length. To get this speed an 8-cylinder gasoline motor was at work and these eight cylinders attached to the shaft were driving the wheel round and round, working in perfect regularity one after the other.

To drive the pistons there was an explosion of gasoline in each cylinder for every two revolutions, so that every minute when the propeller was revolving 900 times a minute there were 3,600 injections of gasoline into the eight cylinders, 3,600 electric sparks made, 3,600 explosions, and 3,600 ejections of exploded gas. And that wonderful piece of mechanism worked without hitch of any kind and can do it so long as it has gasoline to feed on and the boat can carry sufficient oil to go at top speed.

About one drop of gasoline is injected into the cylinder for each charge. The motor develops 175-horsepower, and it uses a pint of gasoline for each horsepower developed an hour. In an hour it will use about 20 gallons, and the cost of this is about $3.50, or for a ten-hour run, $35.

The *Onontio,* which, by the way, is Iroquois for Big Chief, is owned by Commodore Harrison B. Moore, of the Atlantic Yacht Club. She was designed by Henry G. Gielow, built by the Electric Launch Company, of Bayonne, N. J., and her engine was the idea of James Craig, Jr., of this city.

The boat has many novel features in construction, and Mr. Gielow has demonstrated that it is not necessary to build a mere shell in order to get speed. She can carry eighteen passengers, and these will be as comfortable and dry, even at high speed, as if they were in some good cruising boat. There is no need for life perservers and oil skins to keep dry, as the boat even when running at full speed throws very little water, little of which comes on board.

The *Onontio* is 58 feet on the water line, 7 feet beam, and draws only 18 inches of water. There are three cockpits in the boat; one forward for the helmsman and large enough for four persons, the center one for the motor and engineers, and a large one aft which will comfortably seat fourteen passengers in armchairs.

The stem of the boat is straight, raking forward. There is moderate depth to the forefoot, and the keel rounds up quickly to the after body to a flat surface over the wheel.

The stem is almost semi-circular at the water line, and at the deck it rakes forward almost the same as at the stem. The entrance at the water line is wedge-shaped, and there is a very slight hollow. The lines aft are straight and true, the forward deck is turtle shaped, and there are washboards around the cockpits.

Another novelty in the *Onontio* is that the boat is steered by two rudders, one set on each side of the screw. These rudders, made of bronze, are 12 inches deep by 15 inches long, and the tillers of each are joined by a cross-arm to which the steering lines are attached.

Wonderful as the work of the *Onontio* is, the performance of Frank Croker's *Xpdnc* in her race with the *Vingt-et-un II* and *Challenger* is entitled to even more credit, for her honors were earned in an actual race and her time of 5 hrs. 11 min.

(CONTINUED ON PAGE 68.)



ONONTIO, SPEED 28.36 STATUTE MILES AN HOUR, THE FASTEST MOTOR BOAT OF THE YEAR

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THE MOTORIST AT THE CUSTOM HOUSES

By Charles Quincy Turner

The swiftness with which the motor car passes across a whole country and arrives at the boundaries of another jurisdiction, enables tourists to compress within a summer's or winter's holiday, according to the zone selected, many lands; especially if the tour is outside the limit of the United States. This brings into practical prominence the question of the tariffs levied by various nations on motor vehicles entering their respective territories. A knowledge of their varying imposts is a condition precedent to the motorist's comfort.

The first impulse is to say: "Bow to the inevitable, and avoid import duties by hiring a motor car made in the country in which it is to be used. That is all very well, providing one is going to confine the trip to one country, but having gotten so far, let us say to France, it is highly improbable that the motorist will not want to cross over into Spain, where home-made motors are scarce to be found, or into Switzerland, or Italy, or Germany. In that case the French owned motor places you in no better position than if you had taken over your own reliable and familiar American-made car abroad with you.

It is obvious, therefore, that every motorist intending to pass over the American border, even if it be only into Canada, or Mexico, or to Cuba, and the West Indies, or to South America, Europe, Asia, Africa, or the Pacific islands or Australia, must needs know what amount of import duties he will be called upon either to pay or to give bond for.

There are upward of sixty different countries having their own governments and tariffs, with custom-house barriers and hungry officials laying in wait to seize all dutiable manufactured articles entering their webs; everyone of them bred and brought up in the belief that it is their bounden duty, by hook or by crook, to squeeze the utmost cent out of the stranger at their gates into the public exchequer. Only three countries bid the motorist welcome and pass him on over their borders without exacting tribute, or security for it. Let them be enrolled in the Motorists' Kalendar of friends: Great Britain, Persia, and Siam.

That the motorist may be forewarned and thereby forearmed, the following analysis of the customs tariffs is presented, the terms and weights and values having been in nearly all cases converted from those given verbally in the laws and regulations, into their American equivalents. But even this table must be taken subject to local interpretation, for none except those who have passed a lifetime in battling can tell what obscure clause a lynx-eyed official may spring upon those whom he always looks upon as his, and his country's sworn foes. Our own tariff has been in existence for nigh on a century, as to much of it, and for many years as to all of it, and millions upon millions of tons of goods of every conceivable variety have passed the customs and paid duties, until there would seem to be no possibilities of differences of opinion, yet every week hundreds of new interpretations are sprung upon importers, and disputed as if the law had only been enacted yesterday. And herewith the information:

NORTH AMERICA.

United States of America: The import duty is 45 per cent. on the value, but a tourist from beyond the borders need not pay the duty in cash, if after a careful examination and appraisement has been made, a satisfactory bond is given, providing for the re-exportation of the motor within three months from the date thereof.

An owner desirous of taking an American-built motor abroad should obtain an outward-bound clearance, and on returning bring with him from the United States consul at the port of departure another certificate that it has not been advanced in value or improved.

Canada: Entering into Canada motors are liable to a duty of 35 per cent. of their value, as determined by the purchase invoice, which must be produced to the collector of the customs, but the owners of motors, not new, in use by tourists coming temporarily into Canada, may deposit an amount equal to the duty, and this will be refunded if the motor is re-exported within six months. In the meantime the motor must not be used for gain or hire.

Newfoundland: In Newfoundland the customs tariff is 40 per cent. of the value.

Mexico: In Mexico the motor is ranked as a carriage, and the duty is fixed by weight. A motor weighing below 100 kilos (about 250 pounds) is charged at the rate of 60 cents per kilo, net; the rate per kilo grading down to 35 cents per kilo, for machines weighing 2,500 pounds and upward.

Salvador: In Salvador motors are rated as carriages and taxed 20 centavos per kilo (2 pounds 3 ounces).

Nicaragua: The duties are the same as Salvador, but the Nicaraguan dollar, nominally of 100 centavos, is now only of the actual value of from 15 to 20 cents.

Honduras imposes only 2 centavos on a half kilogramme of weight (about 125 pounds).

Guatemala: The import is according to weight, 17 to 30 pesas per kilogramme of weight.

EUROPE.

Great Britain: Motors are admitted free.

France: On entering France the custom dues must be deposited; $10 for every 100 kilogrammes (about 250 pounds) if the car weighs more than 125 kilogrammes, $24 for every kilogramme if the car weighs less.

The deposit will be refunded by any frontier custom office, against the deposit receipt within six months.

Germany: The duty, if levied, is as if on a vehicle, $37.50, without regard to size or weight.

In order to secure free entry the driver must possess an authentic document proving that the motor has been the property of the owner for a length of time. The time and all other circumstances are at the discretion of the customs authorities, each case being examined on its merits.

Belgium: The import duties of 12 per cent. ad valorem must be paid, but they will be refunded within a year, on production of the receipt.

Holland: The duties are 5 per cent. of value, but the tourist can enter without payment at the discretion of the collector of the customs, who can demand a deposit equivalent to the duties, to be reimbursed on leaving the country, providing the driver possesses a permit from the Secretary of Public Works. This can be obtained in advance.

Italy: The duty is as on carriages with four wheels, about $22. This must be deposited, accompanied by a declaration of the facts of ownership and intention; but it will be repaid at any frontier custom house, on leaving, on production of the deposit receipt.

Switzerland: A deposit of duties is needed, $4 for every 250 pounds gross weight. Against this receipt a permit is given valid for one year. The amount deposited is returned on the motor leaving Switzerland by any frontier station.

Denmark: No deposit is required if the touring motorist makes a declaration that the motor is to stay only a limited time for touring purposes. Otherwise, the duties range from $6.50 to $16.50.

Finland: As carriages with four wheels, covered and having springs, 300 marks.

Sweden: As vehicles "fitted with a motor" they are dutiable as railway carriages, 15 per cent. ad valorem.

Norway: Motor carriages, according to weight, are liable to a duty of 15 ore to 18 ore per kilo (2 pounds 3 ounces).

Spain: The duty is about $3 per kilogramme (250 pounds) of weight. It must be deposited on entry, but will be repaid on leaving.

Portugal: The duty for each complete motor is about $108, repayable on leaving.

Greece: Four-wheel vehicles, $60.

Servia: 50 dinar per 100 kilogs. A dinar is equivalent to 100 paras, of about 19 cents value, and a kilog about 250 pounds avoirdupois.

Bulgaria: 8½ per cent. ad valorem.

Russia: Carriages for four persons, each 198 rubles. A ruble is 100 kopecs and is equivalent to about 77 cents. If on examination of a motor car the motor is found to be undetachable, the duty is fixed on the motor by estimating its weight as 30 per cent. of the aggregate of the weight of the car and motor, and the rate is for that 1 ruble 70 kopecs per pond. A pond is 36 pounds avoirdupois. The duties must be deposited, but they will be reimbursed after a period varying from two to ten months.

Turkey: 8 per cent. ad valorem.

Austro-Hungary: $35.50 and $5.25 for every 250 pounds of engine weight; but these duties will be repaid on production of receipt on leaving.

AFRICA.

Egypt: A uniform rate of 8 per cent. ad valorem.

Morocco: 10 per cent. ad valorem.

Algeria: Same duties and regulations for deposit and return of it, as in France.

ASIA.

India: 5 per cent. ad valorem.

Persia: Free.

Siam: Free.

China: 15 per cent. ad valorem.

French Cochin China: (See France.)

Japan: 10 per cent. ad valorem.

Australia: Federal tax of 20 per cent. ad valorem.

New Zealand: The import duties vary from 20 to 30 per cent. ad valorem.

Fiji Islands: 12½ per cent. ad valorem.

Philippines: Motors for passengers, $60.

Madagascar: (See France.)

SOUTH AMERICA.

Argentine Republic: 50 per cent. ad val.

Bolivia: 35 per cent. ad valorem.

Chili: 60 per cent. ad valorem.

Paraguay: 55 per cent. ad valorem.

Peru: 45 per cent. ad valorem.

Uruguay: 48 per cent. ad valorem.

Venezuela: 25 per cent. ad valorem.

Brazil: 3,000 reis per kilogramme.

Equador: 5 cents per kilo.

British Guiana: Each $80.

Bermuda: 5 per cent. ad valorem.

WEST INDIES.

Cuba: 25 per cent. ad valorem.

Jamaica: One-sixth ad valorem.

Bahamas: 20 per cent. ad valorem.

Windward Islands: 15 per cent. ad valorem.

Barbados: 10 per cent. ad valorem.

Trinidad: 5 per cent. ad valorem.

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From Gotemba, where those who make the ascent of Fuji-no-Yama quit the railway for the short trip to the mountain's base, the Tokaido (Eastern Sea Road) slopes gently from the highlands to sea-level country again. Though Gotemba is a nondescript railway station perched in isolated misery on a plateau of the Hakone range, the memory of it lingers tenaciously, for it is the place where one of the most beautiful of all the wondrous views of Fuji is obtained. Therefrom the sacred mountain is seen in all its glory as it stands austerely alone only six miles across a gently sloping, unobstructed plain.

Thence it rises in one majestic sweep 12,000 feet into the silence of the keen blue sky. Through the thin fine atmosphere a comprehensive view is had of the swelling base and the snow-clad tapering cone.

If the season be not the right one for the climb to Fuji's top, the motorist, unless pressed for time, will pass the night at Gotemba in a quaint little teahouse facing the plain, there to enjoy in quiet, contemplative mood the never-to-be-forgotten vision of the holy mount. If the air be cloudless, he can witness the sun-rise effects and watch in wonder, inspired by awe, the violet sunset lights about the cone. He will find delightful recompense in a spin across the country surrounding the mountain and be rewarded by views of Fuji from every side.

Shubashiri, at the mountain's base, possesses a better inn than Gotemba, and there a motor car can be stored while the ascent is being made. There, also, by lying flat upon the sward and gazing skyward, one can see the tapering sides of Fuji in all their wondrous symmetry; heed the mournful sighing of the wind through the belting forest of pine and larch; watch the circling eagles wing their stately flight around the cone and catch the quavering pipe of the eaglets in their eyrie, rock-bound home. From the topmost point—easily attainable from the middle of July to early in September—the view is extensive and grand. Beside the thirteen surrounding provinces a thousand square miles of azure Pacific unfold before the eye. On the western sky line the ragged peaks of Ashitaka-Yama, with all their splendor of tints and forms, range into view. Nearer, the clustered hot springs of Ashinoyu, Atami, and Myanoshita, the microscopic cities of Tokyo and Yokohama and countless sea ports and mountain villages are seen, as well as the snaky lengths of the old Tokaido winding dustily away over the distant horizon. Across Asama-Yama's smoking crater the Nikko mountains rise in pointed beauty, and such a multiplicity of minor sights reward the gaze that the avid eye grows confused with the vastness and turns back and downward to the billowy masses of sulphurous vapor rising from Fuji's encrusted throat. In the sheltered valleys lying thick along the coast some thirty leagues south from Tokyo waving fields of sugar-cane add their color to the landscape, and almost every child that jumps whooping into the road to command a better view as we steam along carries a formidable piece of half-chewed cane in its fist. Primitive cane mills — guiltless of art or oil—which at every revolution shriek their disapproval in tones that trim one's teeth to a razor edge, become familiar figures along the roadside. Primeval reduction plants, consisting of an antiquated kettle, a straw-thatched shed, and a sputtering bagasse fire, are often seen, and these, with their undue proportion of ostensible customers in the persons of keen-eyed, fat-paunched youngsters, carry the thoughts backward to our own sunny south-land of the sugar-cane and corn.



FUJI-NO-YAMA, THE SACRED MOUNTAIN OF JAPAN

Shizuoka is 120 miles from Yokohama and 50 from Gotemba over a rideable, and in some places coastable, road

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THE BEAUTIFUL LAKE AT SHINO-NO-SUWA, A TYPICAL JAPANESE INLAND BODY OF WATER

and, unless the motorist be scorching against time and a sinner against himself, he will, on arriving, deposit his machine in the hospitable inn, refresh himself with a cup of tea, be sure that no one has used the bath before him, and stroll out among the lacquer and bamboo work shops for which the place is famous. Like many Japanese towns it enjoys the distinction of being the center for a specialty, and here intricate basket work in curious and beautiful shapes, cheap lacquer work and delicate bamboo plaitings for covering egg-shell porcelain cups—brought from the province of Mino—are made. From this prolific city come the bamboo candy boxes that are such familiar objects in our confectionery shops about Christmas time. In Japanese history the place is enshrined as the chosen home of the great Iyeyasu, and as the birthplace of some of the choicest literary treasures extant in the vernacular.

On a motor car trip from Hakodate to Nagasaki one will pass through many of these manufacturing villages—diminutive places, most of them—whence emanate some of the dainty treasures that grace our American homes. On reaching a place noted for some work of art, one instinctively seeks the conventional factory with brick walls and towering chimneys, but never finds it. Diligent search reveals the fact that every other family or so will have one or more finished pieces of



A STREET SCENE IN KAWASAKI, NEAR TOKYO—JAPANESE DECORATIVE ART IS EXTRAVAGANTLY ILLUSTRATED

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ANOTHER STREET SCENE, THIS BEING IN A MOUNTAIN VILLAGE, ONE RESEMBLING ANOTHER WITHOUT MUCH VARIATION

work, or one under construction, and with primitive tools these home workshops turn out articles of uncommon beauty—some of them fit to adorn a palace in any land.

In a fan town where thousands of the cheaper grades are made skilful little children deftly paint upon them the landscape and other views, employing as many as three brushes held at one time between the chubby fingers of a hand. Like diligent and mischievous gnomes they work and chatter. In their unrestricted work upon the fans they soon learn to trace the smudgy little features of a brother or a friend, and I seem to recognize many familiar phizzes during my stay in this particular town.

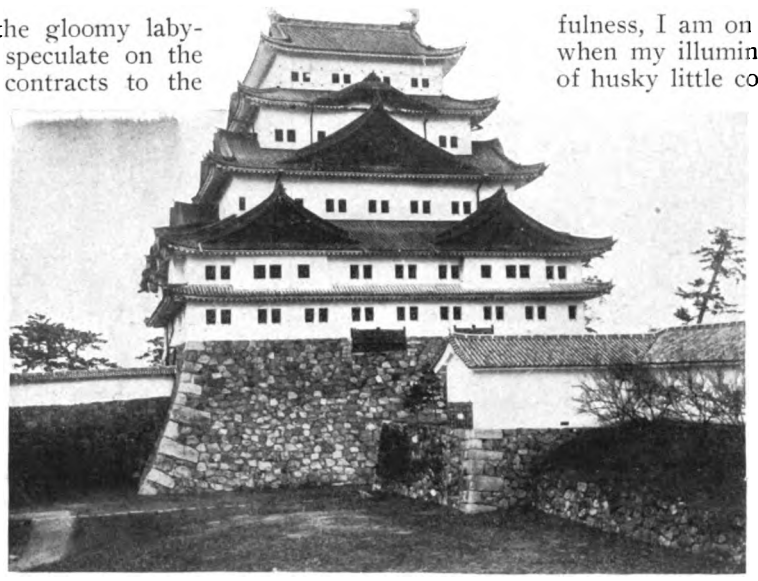
About twenty miles south from Shizuoka the Tokaido curves sharply to the left to avoid climbing a prominent spur of the central range of mountains forming the backbone of the island. Then capitulating to necessity, it winds upward over a lesser arm of the sierra before stretching out for a hundred-mile run across a section of country reaching almost to Nagoya. About ten miles from where it takes on its mountainous character, after zigzagging here and there, now dodging some unscalable peak to risk its identity in the shifting sands of a river's bed, it brings up against a formidable-looking peak apparently determined to bar our passage over it or around its churlish sides. As the auto chug-chugs slowly along the upward grade, pene-



A BIT OF THE OLD TOKAIDO, THE FAMOUS AND PICTURESQUE EASTERN SEA ROAD

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trating deeper and deeper in the gloomy labyrinth of the hills, I begin to speculate on the probable outcome. The road contracts to the limit of a double ricksha path, showing deepish chasms on one side, and, for the motor car, insurmountable inclines on the other. To retreat is a physical impossibility, as there is not over six inches of leeway on the gully side of the road. So I steam ahead gingerly, now burying the hubs in the loose earth of the incline, anon crossing skeleton bamboo bridges barely wide enough and which creak and sway ominously beneath the weight. When possible we take these at a run, for to linger would mean to fall. But presently an angle in the road relieves the situation and reveals a sombre-looking tunnel bored squarely through the stomach of the offending obstruction. I am unable to decide whether it is a deserted mine shaft or a passage through the hill until I descry an old samurai, who with extraordinary fulness, I am on the point of following the light when my illuminating friend releases a fusillade of husky little coughs which die from strangulation the moment he feels the texture of his cumsha. This essential preliminary arranged, I advance into the tunnel mouth enveloped in a wavering glare that would have warmed the thirsty heart of a heavy villain on the stage. The conduit is about a furlong in length, ten feet square, and floored with a succession of unevenly laid planks which sighingly rise and fall to pressure, sending up sputtering streams of frigid ooze through the knot-holes and between the cracks. The traject is shaped like a boomerang with a well-defined angle at its midway point. I enjoy the full benefit of the light to this angle, meanwhile speculating on what lies beyond. Edging cautiously around the slimy corner, half expecting to see a small yellow disc of sunlight at the nether end, I am brought to a sudden halt by streams of



NAGOYA POSSESSES A CELEBRATED CASTLE, ONCE A ROYAL RESIDENCE



A JAPANESE IRIS GARDEN—THE JAPANESE LOVE OF FLOWERS IS PREDOMINANT

amazement and unequivocal anticipation written on his wrinkled face, comes bowing and smiling toward me.

To the right of the opening in the hill, standing fairly in the path of the slanting sunbeams, is a fulcrumed wooden framework surrounding a pivotal system of mirrors, each about two feet square, and which, properly adjusted, reflect a flood of uncanny light into the tunnel mouth. With the agility of a rheumatic old monkey the samurai leaps to the glasses, focusses them and stands ready to pour a stream of reflected sunlight upon me. Mentally thanking the Mikado for his thought-



A WAYSIDE ARTISAN, HIS NUMBER BEING NUMEROUS

blinding sunshine from a second system of mirrors at the exit.

I am neatly trapped, for a Niagara of light reaches the angle from the faithful illuminator left behind. Vainly I shout, gesticulate, and excommunicate their Shogun ancestry for generations. They both take it for a call for more light, and, in their feverish anxiety to obey the supposed commands, they frantically shift the mirrors, peer above the tops to see if they have the right focus, then shift them again until fugitive waves of light and shade chase each other across

(SEE PAGE 58.)

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THE BENBOW AIRSHIP DEMONSTRATING ITS DIRIGIBILITY TO AN INTERESTED CROWD

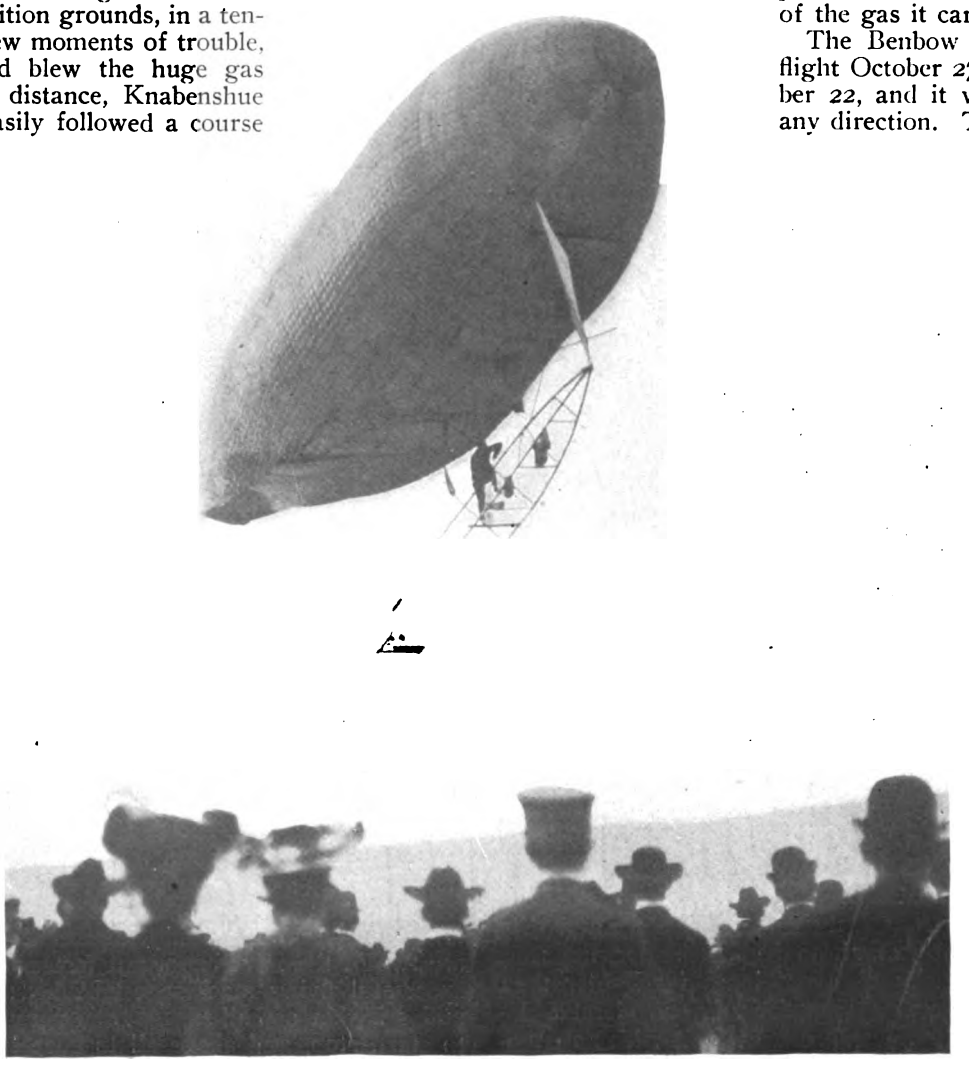
THE ARRIVAL OF THE AIRSHIP

By Aeronauto

The remarkable airship tests that have been in progress at St. Louis seem at last to have awakened the public mind to a new mechanical development. The fact that the practical flying machine probably is no further off to-day than the motor car was twenty years ago, appears to be much more widely believed than it was a year ago.

The performances of the Benbow, the Baldwin, and other dirigible balloons at St. Louis at least have had the effect of showing both the domestic and the foreign sceptic that the American inventor can turn his hand to the making of flying machines, as well as to more prosaic things, and with equal success.

The first trial of Baldwin's machine, the *California Arrow,* was made October 25. A. Roy Knabenshue, of Toledo, O., was the helmsman, and the flight was commenced from the Exposition grounds, in a ten-mile breeze. After a few moments of trouble, during which the wind blew the huge gas bag for a considerable distance, Knabenshue regained control, and easily followed a course resembling a giant figure eight. Then the rudder chain broke, and the craft was carried by the wind across the Mississippi, landing safely in Illinois at a point ten miles away. A very successful ascension was made October 1, the machine proving perfectly under control, and capable of sailing in any desired direction. After reaching a height of 3,000 feet, and remaining in the air fifty minutes, it was returned to the starting point. The next day a forty-five minute trial was made, lasting forty minutes. A speed of twelve miles an hour was maintained easily, and the altitude reached was a quarter of a mile. On a fourth flight, attempted the same day, the motor broke down, and a landing was made. Then, in towing the balloon back to the city by means of a motor car, it broke loose and was lost. It was found the next day, sixteen miles from town, practically uninjured.



THE "CALIFORNIA ARROW" DESCENDING AFTER A SUCCESSFUL FLIGHT

The *California Arrow* was designed by T. S. Baldwin, of Oakland, Cal., and represents thirty years of study and research. The gas bag is cigar-shaped, of Japanese silk, coated with linseed oil, and is 52 feet long by 17 feet in diameter. Its capacity is 8,000 cubic feet. The car is a light cedar and piano-wire framework, 40 feet long, and triangular in section. The propulsion is effected by an 11-foot, two-bladed, silk-covered propeller, driven at 200 revolutions a minute by a 7-horsepower gasoline engine, weight 66 pounds. The total weight of the whole machine loaded is only 220 pounds—80 pounds less than the lifting capacity of the gas it carries.

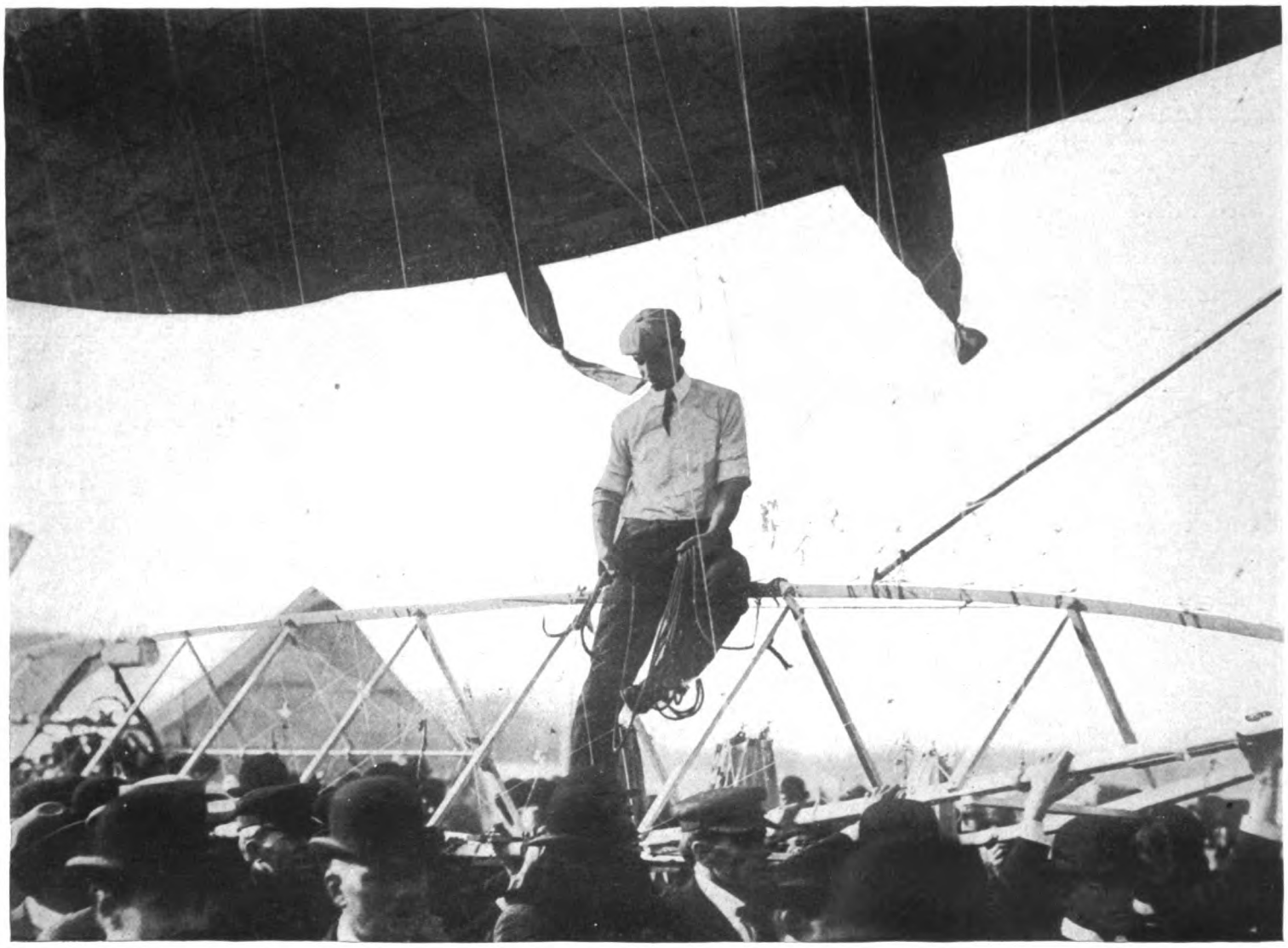
The Benbow *Meteor* made is first flight October 27, and its last November 22, and it was readily steered in any direction. The *Meteor* gas bag is 74 feet long by 22 feet in diameter, with a capacity of 14,000 cubic feet. The car, of aluminum, is suspended from a horizontal wooden spar, 50 feet long, carried immediately beneath the balloon proper. A 10-horsepower gasoline engine drives two peculiarly-constructed paddle wheels, 12 feet in diameter, which are arranged to act against the air only in one direction.

The $100,000 prize, which was offered by the Exposition management for three successful trips, at a speed of twenty miles an hour, around an L-shaped course between ten and fifteen miles in length, was won by none of the contestants, but a number of smaller prizes,

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ranging from one of $5,000 down, were awarded for the partially-successful flights. Despite all that has been accomplished with it, there seems little likelihood that the dirigible balloon is destined to become the successful airship of the future, though it doubtless will receive much attention as a means of accumulating valuable data concerning the great problem. The finally-successful airship must do several things. One is to lift and maintain its own weight and that of its freight above the ground, another is to propel it in a lateral direction. To effect the first of these by carrying enormous quantities of some gas that is lighter than air, is hopelessly impracticable so far as any genuine commercial application and reliable operation under all reasonable conditions and in all ordinary weathers are concerned. The lightest gas known is hydrogen, which is much used in balloons, but no gas ever can be discovered that will weigh less than a vacuum—less than nothing. Yet, the lifting force even of a vacuum is limited to the weight of the air it displaces. Thus, a vacuum twenty feet in diameter would have a lifting force equal to the weight of air that could be contained in a sphere of that size—163 pounds. With hydrogen, or any gas, the lifting capacity is equal to the difference in weight between air and the gas—134 pounds, in the case of hydrogen filling a 20-foot sphere, and less with any other known gas. Since the gas must be kept from escaping or the vacuum must be kept from leaking, the question of a containing envelope clearly is one of serious importance. The use of a vacuum is, in fact, an obviously impossible proposition, because the envelope then must withstand the normal atmospheric pressure of fifteen pounds to the square inch, thus calling for a strength that it is totally impossible to secure, even with the strongest metals known, without far exceeding the lifting capacity that is secured. The advantage of using a gas is that it resists the atmospheric pressure, making possible the use of a containing envelope light enough to be lifted. Despite this, the best balloons necessarily have envelopes far lighter than is desirable, and altogether too light for any considerable degree of safety. No balloon ever has been built with an envelope sufficiently impervious to retain the contained gases for more than a few days, or that would withstand the stresses imposed by rough weather or by any means of driving its vast bulk through the air at really good speed. One result is that filling a balloon even with illuminating gas at fifty cents a thousand is a most serious item of expense if any great lifting capacity is to be had, since it takes 24,000 cubic feet of illuminating gas to lift 450 pounds, within which limit must come the weight of the envelope and the rest of the craft, together with the passengers. A given bulk of hydrogen will lift twice as much as illuminating gas, but is many times more expensive. While the question of expense hardly would be a final condemnation, it is by no means the only fault of the dirigible balloon. The other result of the use of a gas bag is the utter impossibility of avoiding in this type of airship a bulk and fragility together inconsistent with reasonable ideas of carrying capacity and service, making it probable that its highly spectacular, but only moderately-successful trials indicate it is to be no more than a valuable means of determining the conditions that must be met by the successful machines that will follow it. That such will follow it, there can be little doubt in the minds of any who have kept informed of the progress that so far has been made in aeronautics.

In all probability, the final airship will be some evolution of present-day aeroplanes and lifting-propeller machines. Though machines of these types so far have failed to give anything like as spectacular results as have been furnished by the balloon, they have established facts and demonstrated theories that are bound to be of inestimable value. For instance, it is proved by actual experiment, beyond any possibility of question, that a flat aeroplane of 400 square feet in area—20 by 20 feet—driven edgewise through the air at a slight inclination from the horizontal, and at a speed of only 40 miles an hour, will lift 1,000 pounds—an amount allowing of very strong construction and large carrying capacity. Also, it has been demonstrated that not over 15 horsepower is necessary to maintain the 40-mile-an-hour speed with such an aeroplane. Here, then, are two of the most important factors in the construction of a successful flying machine established; the chief one that remains is that of ballistics. It is necessary only to learn how to start, stop, and above all to keep in balance an aeroplane, to perform flights in contrast to which the best work of the dirigible balloon will be as the performance of a railway train is that of a velocipede.



A. ROY KNABENSCHUE—THE CHAUFFEUR OF THE BALDWIN CRAFT ABOUT TO UNDERTAKE A SKY MOTOR TRIP

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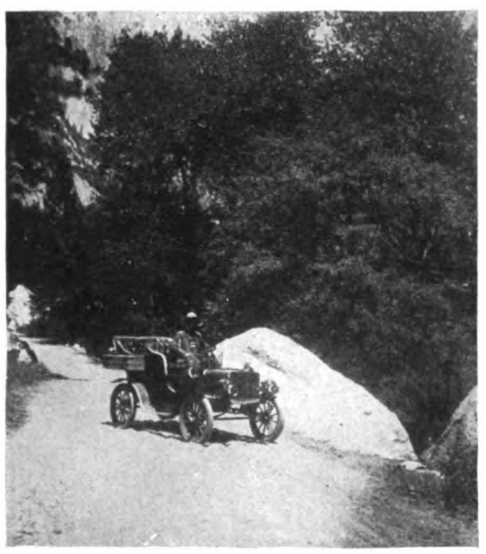
OPPORTUNE GLEANINGS FROM EXPERIENCE

By Our Readers

AMONG THE SIERRAS

By A. B. Cuym

My wife and I left Oakland, without special preparation of any kind for an arduous trip, and made a delightful run of 100 miles to Stockton, via Niles Canon and Livermore, in four hours and a half, our only stop being to oil up mid-way. I had two gallons of gasoline left in the tank out of seven, when I arrived at Stockton. Leaving Stockton next morning at 8 o'clock, we ran via Cherokee Lane and Woodbridge, 62 miles, to Sacramento without a stop, part of the way over rather rough oiled roads which would not allow speed, arriving at 11:15 a. m.—better time, I was told, than was generally made by motor cars. I spent an



MADE THE TRIP IN A ST. LOUIS RUNABOUT

hour looking over things to be sure nothing was amiss before starting up the mountains and out of reach of help, but found nothing to do except to tighten up the bearings of the engine-shaft.

Starting at 1:30 p. m., the run out to Folsom of 23 miles was done in an hour over a very fair road, with a slight steady grade. Here the mountains begin, and for eighty long miles you climb, climb, climb, to the 8,000 feet summit above Tahoe. Leaving Folsom, the day was very hot and the roads dusty, rocky, and rough. When a level stretch or downhill grade was reached you had to run slow just the same, so that the low gear was used almost exclusively. Passing through the old mining towns of Clarkville, Eldorado, and Shingle Springs, we made the first thirty miles up hill to Placerville by 5 p. m., and after loading up with gasoline, went on twenty miles farther to the Pacific House, one of the best roadhouses in the mountains. Fifteen miles of this is up a pretty steep grade through deep red dust. That made 135 miles for the day, 50 of it up the Sierras.

We started bright and early next morning to escape teams on the narrow and precipitous grade in and out of the crossing of the American River. The 28 miles to the summit, after leaving the river, is up grade without a break, and a mighty hard climb. The three miles of grade known as Slippery Ford of Comstock days fame, above Strawberry Valley, is especially hard, 20 to 30 per cent. with a loose road bed of granite sand. Ten o'clock found us on the summit looking down at that fine view of Tahoe Lake and valley. We descended the three-mile grade into the valley, and though at least 20 per cent. in places, we had to use power to go down, so sandy was the road bed. That gives a better idea of what it was to come up. The last stage of the trip through Tahoe Valley to Tallac was the worst. We could not take the stage road owing to a deep ford, which is not fordable for a motor car until August, but had to make a fifteen-mile detour up and down hill. In places the sand simply had no bottom, and I bound the rear wheels with all the rope I had; without it, the wheels would simply dig graves for themselves. A man pointed out one sand hill, not more than fifty feet of road, on which he said the last transcontinental car spent two and a half hours working over. I stuck three times on it and many more elsewhere, but got started by backing on our thick lap robe with my driving wheels to get traction and a fresh start. That robe pulled us through. The fifteen miles took three and a half hours, and we lost no time about it, I can assure you, but at 2 p. m. we rolled triumphantly into Tallac, one and a half hours less than two days from Oakland, for the 300 odd miles and the Sierras thrown in. I believe this to be the first machine to come clear through to Tallac—the only one on that road.

The trip out I made two days later, and having a larger rope (one inch) and plenty of it on my tires, I got through the sand much easier. One hill was impossible, but I went around through the woods (pretty rough going) and got over. The grade out of the valley was a tough one to negotiate, but I used lots of oil and took it slow.

Our last day's run was a long one. We came from Sacramento to Oakland, but got off the road below Stockton and went nearly to Oakdale before finding our mistake. A short cut was recommended, and like most short cuts it was a bad one. In the course of it we crossed two irrigation ditches and ran over five miles of sand where the lap robe again rescued us. In spite of it we finished 185 miles that day in time for dinner at home.

VIEWED BY A LIVERYMAN

By R. R. Bennett

I receive MOTOR every month, and enjoy it thoroughly, and thought I would ask if motoring takes such a hold on others, who, like myself, are in a rival business. For the past forty years I have kept a livery stable, and have been an enthusiastic horseman up to within a few years. When the electric motors came out, of course, I got the craze; but this time it seems worse than ever before, for now when my patrons call on me at my office, which I have had in Brooklyn for 30 years, they are immediately referred to my automobile annex, and there I am morning, noon, and night, looking over my Baker, which I find most convenient luxury, for running errands and riding through the park.



A PROGRESSIVE LIVERYMAN

TO DELAWARE WATER GAP

By G. Stanton Floyd-Jones

We have just returned from a most interesting trip, a brief account of which may entertain your readers. Our itinerary contemplated starting from Massapequa on Long Island, proceeding to New York, and thence by way of Hackensack to Morristown and Bernardsville, where we were to stop the first night; the second day on to the Delaware Water Gap; the third day to Philadelphia, the fourth to Atlantic City, and the fifth we hoped to arrive back home. I am happy to say that this programme we were able to carry out exactly as planned.

We left Massapequa in our Berg touring car at 9 o'clock on a Monday morning, and covering two legs of the course laid out for the Vanderbilt race, ran to Douglaston, and then on to Bayside. Here we were delayed thirty-five minutes by a deflated tire, one of the patches



HOW WE CROSSED THE DELAWARE WITH OUR BERG

having slipped owing to the poor cement with which it had been previously repaired. A convenient hayrick by the roadside made a most comfortable resting-place for the two ladies of the party and myself, while Updike (our chauffeur) made the necessary change in inner tubes. Then on to Flushing, where we stopped a few minutes to purchase some ginger wafers and crackers; for previous experiences have taught us that the inner man—and woman, too—are at times a little imperious in their demands when a-touring. We ran quickly down to Astoria, where we had expected to ferry across to Ninety-second Street, but a very courteous policeman came up to us while we were waiting for the boat and informed us that motor cars were not allowed on this ferry, and the only way was to go to Thirty-fourth Street. That was, of course, disappointing, but we managed to reach Long Island City via an alleged boulevard, and without further incident arrived at the Forty-second Street ferry for Weehawken. On the New Jersey side we had a delightful ride up the west bank of the Hudson, with a grand view of the city, and then, branching northwesterly, stopped at 2 o'clock at Hackensack for lunch. Mileage to this point, 52. The lunch is hardly worth mentioning, but the drive to Soho via Rutherford, Lyndhurst, and Belleville, was most beautiful and over excellent roads. Our second trouble occurred here. Just after crossing Belleville bridge, in turning a sharp curve rather rapidly, one of our rear shoes partially slipped off, resulting in an exploded inner tube.

Updike amused himself for forty minutes in putting in a new tube and other requisites, and we were off again for Bloomfield, where we took in a supply of gasoline, and then on through the Oranges, Springfield, and Madison, to Morristown. Entering the latter place, we were notified by a policeman that we were

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limited to eight miles per hour, so we promptly reduced our speed two-thirds. The road from Morristown to Bernardsville is excellent, and then we turned northerly and ran up to the Somerset Inn, arriving just after 6 o'clock.

Here we received a cordial welcome (having notified mine host of our intended visit), and were given excellent rooms and a dinner that could be beaten nowhere. Our odometer showed that we had covered 99 miles for our first day's run, and we were ready for bed long before 11 o'clock.

Tuesday morning was beautiful, and after a hearty breakfast, we started at 9:15 o'clock for the Water Gap. The run to Mendham, six miles over the hills, was most enjoyable, and after taking a supply of gasoline, we went on to Chester, and thence to Hackettstown, arriving them at 11 o'clock. Here we stopped for a short time, the ladies doing a little shopping, while I gleaned advice as to the proper course to steer.

Discussing the political situation, I observed to an old native that I presumed that the population of Hackettstown was largely Democratic.

"No, sir," was the reply; "I did see a Dimmycrat somewhar 'round here a few days ago, but I h'ain't seen nothin' of him sense, and I reckon he's escaped."

The country hereabouts is very hilly, and after passing Danville, five miles beyond, the roads, which up to this point had been most excellent, began to deteriorate. The climb around Schooley's Mountain was in some places pretty steep and rather rough, but by no means bad for a mountain road. We encountered almost no sandy roads, and had no difficulty whatever in negotiating the steep places. At Buttzville, the most obliging preprietor of the grocery store gave us very minute directions for reaching Manunka Chunk, which place we passed later without knowing it, arriving at Myers Ferry three miles beyond at 12 o'clock.

At this point we crossed the Delaware River to Pennsylvania in a flat-bottom boat, not unlike that used by Washington in his widely illustrated cruise. This boat is usually propelled by the force of the current, it being secured to a cable stretched across the stream. At this time, however, on account of the water being low, the ferry-master was obliged to pole us across.

The road up to Portland—about four miles—was good, but from the latter place to the Gap it was very poor. However, we arrived in good order at the Kittatinny House at 2 o'clock, in time for lunch, having made the 49 miles with two stops in something less than five hours.

We had a good long afternoon in which to enjoy the beauties of the Gap, and it certainly is a most attractive place. We were very comfortable at the hotel, which is the largest in the place. A little incident occurred here which introduced to me a new wrinkle in hotel life. I was anxious to send a few picture postals, and after some difficulty found a vacant writing table at which I seated myself. As there was no pen, I took my lead pencil and was about to begin when up bustled an elderly person of feminine gender, and notified me that she had not finished with her writing, and had removed the pen in order to indicate that the table was still reserved. I apologized and concluded it was time for me to go to bed.

Wednesday morning was somewhat hazy, indicating heat. As Philadelphia was our objective point for that day, over somewhat doubtful roads, we made an early start leaving the hotel at 8:35 o'clock, and ran down to Portland, where it required a half hour to ship eight gallons of gasoline, the apothecary, of whom we purchased it, being obliged to carry it about 100 feet, and a gallon at a time, having no larger measure.

From Portland we passed on through Centerville, Richmond, and Martin's Creek to Easton, arriving there at 10:30 o'clock. The latter part of this twenty-two miles was over a perfect road. Easton, although a manufacturing town, is a very pretty place with a number of handsome residences.

Our route now took us down the west bank of the Delaware through Raubsville and Riegelsville, to Kintnersville, where we arrived at 11:35 o'clock. Here, leaving the river with its charming scenery, we passed through Pipersville and Plumstedville, and arrived at Doylestown, fifty-sixth miles from the Gap at 1:45 p. m.

We lunched here, and concluded to change one of our forward shoes, which for some time had had a doubtful appearance. As the signboards indicated that we were within thirty miles of our destination, we delayed our departure until after 4 o'clock, and then running down through Newville, Horsham, and Willow Grove, and passing Jenkintown and Ogontz, turned off into Broad Street, which has been extended north into the suburbs of Philadelphia. We rolled along down this beautiful avenue for several miles, and as it was rather cloudy and growing dark, we lighted our lamps for the first time on our trip, and at 6 o'clock arrived at our hotel, the St. James, having run 84 miles from Delaware Water Gap. None of us felt at all tired, and heartily enjoyed an excellent dinner.

Thursday morning it was raining, but about 9 o'clock cleared up a bit, and we decided to start. Running down Chestnut Street, we took the ferry to Camden, leaving there at 10 o'clock, for Atlantic City. We shortly after were delayed about thirty minutes by a stoppage in the pipe from the gasoline tank to the carbureter, but by uncoupling the pipe and attaching our tire pump, we blew out the dirt and went on rejoicing. This was our first trouble since the bursting of the inner tube at Soho.

The ride to Absecom and Pleasantville, over a perfect road, almost straight, was enjoyable though uneventful, and after the beautiful scenery we had passed, seemed rather tame and uninteresting, but the last five miles over the Causeway kept us constantly "on the jump."

We reached our hotel, the Chalfonte, at 1:40 p. m., in good time for an excellent lunch. This is a new hotel opened last July.

Leaving the Chalfonte at 8:30 a. m., Friday, we arrived at Absecom, nine miles therefrom, after a perilous trip over the Causeway, in 45 minutes, and thence over perfect roads and with flat though interesting scenery to Toms River. Here we alighted and walked about for a while to warm ourselves up a bit, for we had been riding thus far in the teeth of a strong cold northwest wind. Then on to Lakewood—sixty-nine miles—which we reached at 12:30 p. m.

We wished to lunch at one of the large hotels, but as dinner would not be ready for some time, we looked up a very nice restaurant, unique in its way in that we had the run of the whole house, where we lunched satisfactorily, and leaving there at 1:35 p. m., pushed on to New Brunswick, 110 miles, arriving at 3:45 p. m.

We then ran down to Perth Amboy, but having missed a boat, did not arrive at Tottenville, on the Staten Island side, until 5:10 p. m. Although it was not very dark, we lighted our lamps, for the roads on the Island, though good, are narrow and curved. Running cautiously, we reached New Brighton, 15 miles from Tottenville at 6:30 p. m., and there waited until after 7 o'clock for a boat. The trip across the bay and up Broadway was not exciting, and after a good dinner and a brief rest at the Manhattan Hotel, we took the 9:40 boat for Long Island City.

Jogging along, we reached home, thirty miles from Long Island City, at 11:30 p. m., having made a total of 177 miles for the day.

Thus ended a trip of 475 miles, in every way delightfully successful, and almost entirely free of troubles. We used 58 gallons of gasoline, and had no trouble in procuring it whenever we required it. In every hotel at which we stopped, we had three bedrooms, and two bathrooms beside the accommodations for our chaffeur, and the total cost of the trip, including gasoline, was $109.

In conclusion, I desire to gratefully acknowledge the valuable information in regard to routes, furnished by MOTOR, which proved of inestimable value to us on the trip.

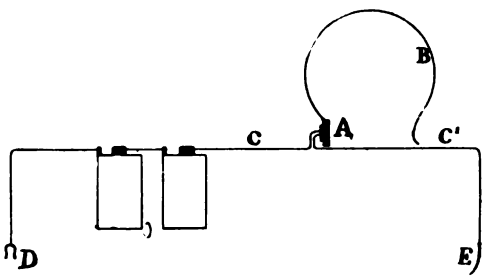
TELEPHONIC FAULT-FINDER

By Phil Price

A very simple, compact, and inexpensive device that I have not previously seen described is one by the use of which a great deal of battery and ignition-circuit trouble can be readily located. As shown herewith, the apparatus consists of a watch-case telephone receiver, or "headphone" A, provided with a band B for holding it to the ear, and two covered conducting cords, C and C', to one of which there is attached a clip, or snap D, and to the other a heavy needle E.

Loose connections and open ignition circuits not infrequently develop when batteries are used for ignition purposes, and cause the engine to misfire, or perhaps to fire at the wrong moment. The faster the engine is running the greater the trouble, for which reason the engine is blamed frequently when the real trouble lies in the battery circuit.

With any typical ignition system arrangement, a good way to test for a loose connection or open circuit is to snap the clip D on the wires where they come together from the two dry battery sets. Then, with the needle E go over the set of cells that refuse to operate. A loose or corroded connection, causing a momentary or a permanent loss of current, may exist in the wires connecting one cell to another, and, with clip firmly attached and the needle in contact with the last cell of the set, this fault can be readily located by taking each connection wire separately and working them with the fingers. Any looseness or poor contact will cause a scraping noise to be heard in the receiver, due



Telephonic Fault-Finder with Two Cells of Dry Battery

either to the current being broken or being varied in strength. When a completely open circuit is closed, a "click" will be heard in the receiver, and the same noise will be made when the circuit is broken outright, but the scraping noise will result only from a bad joint.

Any circuit, or any connection, can be tested by taking one or more cells of battery and connecting it in series with the receiver, Fig. 1, and then going over the circuit with the needle, clipping the battery end of the testing apparatus to any convenient point in the circuit. Then move the needle along the circuit until no click is heard when contact is made, and this will indicate that the break, or "open," lies between this point and that where the click was heard last. The needle may be punctured through the insulation of the circuit wires if necessary to make a contact at a certain point, but this is to be avoided if possible, all exposed connections, binding posts, etc., being made the first subjects of the test. A needle hole through the insulation, away from possible grounds, is not very serious, however, except perhaps in the secondary circuit. Moreover, such a hole can be practically closed by pressing the insulation together after the needle is withdrawn.

Numerous other uses will suggest themselves to the ingenious, and the compactness of the device merits it a place among the other tools of emergency and repair.

A watch-case telephone receiver with headband will cost about $1.25; the two flexible wire cords (each about four feet long), about thirty cents each; the clip, five or ten cents, and the needle five cents.

The cords are to be fastened to the binding posts on the receiver, and their free ends soldered to the clip and to the needle respectively.

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CHAPTER I.

Lady Beeston was a very pretty woman; even her enemies, of whom she had plenty, allowed that, and when a pretty woman's enemies allow that she is pretty, it may be taken for granted that she is not plain, and that she may be beautiful. Her points, namely, the irresistible sparkle of her very blue eyes, her admirable teeth, her two adorable dimples, which were caused by laughter, and her charming gaiety of expression were most in evidence when she was laughing or talking. In consequence, she was almost always doing the one or the other, and most often of all, both. She was doing both now as she sat on this winter evening near the great open fire in the hall, which so often did duty for the more formal drawing room in her husband's house down in Hampshire. It was a charming room, with a gallery at one end, in which stood an organ, with tapestried walls and a great air of solid and established comfort. As a matter of fact, it was her philosophy of enemies which she was at this moment setting forth to those of the party who were not playing bridge.

"My dear, one must have enemies," she was saying to Muriel Carrington. "Enemies are to life what shade is to a landscape, and if I were not naturally gifted with them I should not waste a minute in getting some. Who is it who says, 'The genial impulses of love and hate?' That is so true. It is impossible that you and I shouldn't have people who detest us. It argues a great dullness not to have enemies. It takes all sorts to make a world, and I am humbly and devoutly thankful every day that I have rooted and fervent dislike of the particular sort to which I belong."

"Are you one of your own enemies, then, Dot?" asked her husband, driving the poker into the heart of the fire of logs and peat, and sending a firework display of sparks and red-hot fragments roaring up the chimney.

"No, you delicious old stupid," said she, "but I am the sworn enemy of women who are rather like me. I detest their continual chatter because it curtails my own; I detest their insatiable appetite for admiration; I abhor their unfeminine scamperings over the country in their horrible motor cars. I loathe the way they fly to the bridge table and sit there with mean greed written on their disgusting countenances—is not that rubber over yet? I am dying to play—until they are literally turned out of their chairs. Rightly, all the women who behave like me are my mortal foes."

A man at the card table laughed.

"I wish there were more of them," he said.

"Gerald, attend to your game."

"I'm dummy."

"What have you declared?"

"Spades, undoubled."

Gerald Morton rose from the table as he laid his hand down, and strolled in long and lazy fashion over to the fireplace, lighting a cigarette.

"The spadiest rubber I ever saw," he said. "Wilfred, why do you let your wife utter these blesphemies against her charming self?"

"No, not against herself," cried Lady Beeston, "I adore myself. I only detest people like me. Really, men are slower to perceive the drift of a woman's thoughts than any other form of animal."

"Ah, but when we do perceive it we remember it," said Gerald. "That is even more unpardonable. The object of conversation is to be instantly forgotten. At least, mine is. There is nothing I dislike so much as being reminded of something I have said."

"Who are your natural friends, then, Dot?" asked Muriel.

"People like you. Long, quiet, slender women, like—like asparagus. Women who lounge through life."

"Like asparagus?" asked her husband.

"Dear Wilfred, you have such a fine gift for checking the natural flow of conversation by asking absurd and unanswerable questions. What am I to say? Yes or no? Either would be quite meaningless."

Her husband laughed, a low, lazy laugh of quiet domestic enjoyment.

"Dot is so easy to draw you," he said.

"As what? As the charming Lady Beeston of belles-lettres, or as the complete and frightful lady motorist up-to-date? Gerald, where is your sketch? It is admirable."

Gerald took down a pencil sketch, boldly and broadly colored, from above the mantelpiece and gave it her. It represented a gigantic motor-car coming full toward the spectator out of the picture, driven by Lady Beeston sitting triumphant, with head thrown back and open laughing mouth, while a diminutive chauffeur cowered by her side, clinging to the rail of the car. On the road in front were flying figures of dogs and poultry, while a large pig was at the moment caught under one of the wheels and was squealing its ultimate death cry. It was this, so the sketch seemed to suggest, that had caused the ecstacy of the driver's amusement. As she looked at it now she threw back her head again and laughed, and one could see how admirably Gerald had caught the gaiety of her face. It was scarcely a caricature; it was the brilliant, almost intuitive, seizure of a moment. Caricature there was in plenty in the sketch, but the centre point, that face of childish unreflecting glee at the squeal of the massacred pig, was life itself.

"You have done me more than justice," she said, "you have put me in excelsis. I should not really laugh at all if I ran over a pig; I should be much concerned and go slow for days, but I am intoxicated with high speeds—it is that you have caught. And the car in your picture is really going a tremendous pace. And the mask and goggles—ah, I had not seen that before—look, Wilfred, I am waving them wildly about in my hand!"

"That is not caricature, either," said Gerald. "When you passed me yesterday on the measured mile you waved them at me."

"Dot, I wish you wouldn't do that," said her husband, "you'll get something in your eye, wince, and next morning be charging the ditch."

"I had to. I just had to. Besides, there was no dust; the road was frozen as hard as iron, and there are no flies in winter. It was so gloriously cold; the air was like a syringe of iced water playing on one's face. It went right through my skin and poured new life into my blood. How on earth I lived all these years without ever going sixty miles an hour, and driving myself, I cannot imagine. I should collapse, melt, fade away, grow old in a week, if I couldn't. As it is, I am getting slightly younger every day."

Muriel shivered and drew closer to the fire.

"What can you find in it?" she asked. "Why, if rapid motion is what you want, do you not go in an express train and lean your head out of the window?"

Dot looked at her with real genuine pity in her eyes.

"Darling Asparagus," she said, "I am so sorry for you. You can't understand. I suppose you literally can't understand. I wonder if I can make you?"

She got up, and with a mocking gesture, put her hands together as if in prayer.

"O, Daimler, and Dion, and Mercedes, inspire my tongue," she said, "proud double and treble cylinders and spirit of ignition, help me to illumine her darkness."

She turned to Muriel.

"Now, Muriel, listen," she said. "The car stands at the door ready for me. I can feel its hot breath, I can count the pulsating beats of its heart, those beats that make it tremble all over in its dumb thirsty agony to move. Now, do you think, do you really think that that is a machine? It is nothing of the kind. It is a great living thing, a big and strong animal, as strong as a hundred horses, as unwearying as the wind or the journeys of the sun. Its character—how can I describe it to you? It has one passion—motion. For motion it will do anything. Only let it run, and it loves you. You have to study it, though, and by continual and constant study you get to know it, as you get to know a horse or a human being. You may go out in it a hundred times, but on no two days will it run the same. Day after day the chauffeur treats it in exactly the same manner, gives it exactly the same food, oils it, cleans it. Then I get up and turn certain handles and press certain levers in exactly the same manner. But the result is not the same. Sometimes it floats along like a strayed angel from Paradise; sometimes it goes like a roaring lion angry and fierce; sometimes it goes like a galloping horse. No, it is no machine. It is the newest and most wonderful animal ever discovered, stronger than a lion, swifter than a horse more devoted than a dog. For how is it that a car behaves quite differently with different people? Simply because it likes one, and does not like another. Cars adore me, just as dogs do. With me they never break down, they never puncture. Is it not so, Wilfred?"

"Yes, quite true," said he.

The bridge table had broken up and the players had risen from their places and now formed a half-circle round the fire, in front of which Lady Beeston was standing. Her face, always vivacious, seemed almost prophetic, as if her mock prayer had been heard, and the spirit of swift movement had inspired her. She accompanied her speech with admirable gesture of her white jewel-laden hands, which moved as if they had a life of their own, now half-concealed beneath the cascades of lace that trimmed her short sleeves, now seen like flowers on the beautiful stem of her arms bare to the elbows. Her eyes, which at the beginning had looked at Muriel, now gazed out into the mellow light of the candle-lit hall, over the heads of the others, as if fixed on some vision which was open before them. She seemed indeed so charged with a message that she was unconscious of the presence of the others,

(CONTINUED ON PAGE 72.)

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FASHIONS FOR HER MOTORING LADYSHIP

By Grace Margaret Gould



SUIT OF BROWN DANISH KID

There is nothing secretive about the motor car. It is proud of its occupants, and anxious to share its pride with all the world. It says, in effect, as it takes its whirling way, "if you want to see the latest thing out, look at me, and look at my passengers."

This element of dress parade, of course, imposes the obligation of dress. It always has been possible for a woman to huddle back in the recesses of a carriage or sleigh, a mere bundle of indefinable clothes; but to-day all this is past and the fair motorist must be trim and trig, and up-to-date. Her setting demands it. It goes with the car.

There also is another element that makes this same demand of correct dressing, and that is, noblesse oblige. The motor car is essentially the car of wealth and culture; it behooves therefore, those who are borne in the horseless chariot, to look their part and to uphold their station.

It follows, then, from these conditions, that Fashion has a new and most exacting mistress in the motor girl.

But Fashion, like an ideal servant, does her best work when hardest pressed. The motor girl has no reason to compain of the modes expressly designed for her wearing. They are at once practical and fascinating; useful and fetching. And they constitute in themselves a whole wardrobe and not a very small one either.

When the motor girl's fancy turns to clothes it is no longer merely of leather suits that she dreams. Just now, if she is a fashionable young person, as of course we take it for granted that she is, she is thinking of and planning for motor calling costumes, theatre and opera wraps, specially designed to wear when motoring to the play or the opera, and, of course, of all sorts of novel fur garments for cold weather riding, as well as shopping costumes entirely made of soft Danish kid. And this doesn't count her accessories in the way of gloves, veils, hoods, hats, lap robes, and foot muffs. It is getting so that there is no limit to them.

Since calls now are made quite as often in a motor car as in a carriage, the smart girl is paying special attention to her motor calling wraps. The most correct wrap of this sort is a three-quarter length, loose-fitting garment made with generous sleeves that afford ample room for the fanciful modes of the moment. Suede is an excellent material to use for a motor calling coat, and it is interesting to observe that the suede coats designed specially for this purpose are either in white or some equally perishable shade. They generally are trimmed merely with rows of stitching, though they are pretty sure to have very elaborate and costly buttons in the way of ornamentation. Such a coat may be lined either with quilted satin or with fur.

For calling, and to wear when whirling in a motor car to the theatre, a number of extremely modish, all-kid coats have been just designed. They are made of the finest and softest of Danish kid and in such colors as orchid mauve, bright scarlet, peach blossom pink, canary yellow and ciel blue. These coats are exquisite as to their finishing and often are made with a storm collar and deep cuffs of some fur.

A new idea right now is to order when buying an elaborate coat of this sort, a foot muff to match. Just imagine an orchid mauve kid foot muff lined with chinchilla, and yet this is quite in accord with the modish motor girl's idea of correct style.

But it is a blessing to know that there are some genuinely practical warranted-to-wear-well foot muffs in which the majority of motor girls will take solid comfort during the winter. Some are of white goatshair inside and out, and others are of leather, lined with some such fur as Manchuria dogskin, or Abyssinian money.

Then there are the very convenient foot warmers and lap robes combined, which for cold weather riding cannot be equalled. The lap robe is of some good warm fur, and at the bottom there are two spacious pockets in which to slip the feet. The robe is wrapped about the body, and held in place at the ankles, calves of the legs, and waist by light steel half hoops.

For men, there also has been designed a combination lap-and-foot robe, which really serves as trousers, robe, and foot warmer. These generally are made either of a covert mackintosh cloth or of Danish kidskin leather. Then again, there is another novelty for both men and women motorists, and that is a foot protector. It isn't a big foot muff, it is just a warm, comfortable protector to be slipped over each shoe. The best are made of leather lined with fur.

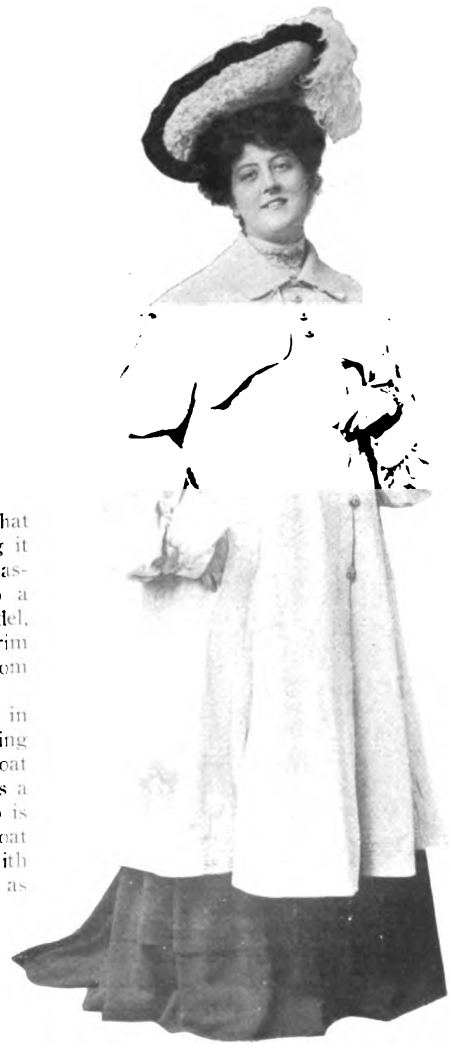


Courtesy Scandinavian Fur Co.
CREAM WHITE COAT OF UNBORN SEAL

One costume at least, of Danish kid is very necessary to the fashionable girl's motor wardrobe. Such a costume will be found very useful in brown, made with a short walking length skirt and a 26-inch length, loose-fitting jacket, perfectly tailored, and trimmed only with rows of stitching and buttons. These Danish kid costumes are light in weight and yet warm, which makes them very desirable for the motor girl in search of a costume either to wear shopping or when taking a long ride.

Of course, with these suits there are hats and gauntlets to match. A Danish-kid continental hat is quite the smartest headgear of the moment to wear with a suit of the same attractive kid. The hat is extremely novel in that when one is tired of wearing it in the continental shape, it easily can be transformed into a straight, broad-brimmed model, merely by unhooking the brim at the sides and in the back from the crown.

Cream-white furs are much in favor with the luxury-loving motor girl. A short box coat of cream white unborn seal is a garment high in favor as also is a full, three-quarter length coat made of white astrakhan. With these coats, hoods, as well as foot warmers are sold to match; and, all in all, it is safe to say that the exacting demands of the most critical taste now are fully met by the really up-to-date dealers in motor apparel.



WHITE SUEDE THEATRE COAT

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By Marston.

Now that the Horse Show is over—that Horse Show which was in reality more of an exhibition of the newest motors than of high-bred nags—there is a brief respite until next month, when all those members of the fashionable set in New York, Chicago, Boston, and the other big cities, will adjourn to Florida for the great motor races on the superb stretch of tide-rolled sands at Ormond. Indeed, the Ormond-Daytona meet in January has become quite as much of a social feature of the year as the Cowes week in England, the Kiel Regatta week in Germany, and as the Horse Show week in New York. The entire clan of Vanderbilts, John Jacob Astors, the Breeses, the Waterburys, the Goulds, and hundred of other equally well known people have already retained apartments for the last two weeks in January, at the various hotels within reach of the racecourse, and as quite a number of titled personages interested in motoring have announced their intention of coming over from Europe to attend the Florida meet, the latter promises to be not only extremely brilliant, but likewise infinitely more successful than the one held last winter. A motor boat tournament at Palm Beach will follow the land races, and immediately afterwards there is to be a week of both kinds of competition at Havana, winding up with a huge flower carnival for which the most elaborate preparations are already being made.

* * *

Society's metropolitan season is now well under way. The Opera once more re-echoes with the strains of artists imported from abroad in defiance of all the foreign labor contract laws for the delectation of the rich; and dinners, theatre parties, and dances follow one another in rapid succession. There is no time of the year when the motor appears to us so indispensable to our comfort as at present. It enables us to do our Christmas shopping in half the time which we were formerly obliged to devote to that purpose. It gives us more leisure to dress, has developed in a wonderful degree that punctuality on the part of guests which is so highly prized by hostesses, and renders it possible for us to get from one social function to another at night without any delay. Above all, it relieves all those of us who are fond of animals of the compunction which we used to feel about leaving our horses to wait outside exposed to wind, rain, sleet, and snow, a compunction that would mar our pleasure and fill us with apprehensions lest the poor brutes should be rendered, in more senses than one, "hors de combat."

* * *

In Europe the sovereign never travels by rail without his train being preceded by a pilot engine, which runs about five or ten minutes ahead, so as to assure a track free from all obstruction. Since the serious accident to the Duke of Connaugh, while motoring from Edinburgh to Gosford Castle, a month or six weeks ago, and from which he so narrowly escaped with his life, King Edward's motor car invariably has been preceded by a pilot car, and the innovation meets with universal approval on the part of his subjects. For it stands to reason that if it is considered necessary to have a pilot engine when he travels by rail, in addition to all the other extraordinary precautions that are adopted for his safety, including locked switches, the relegation of all freight trains to station sidings until the royal train has passed, and the watching of the entire track by men armed with fog signals, stationed within sight of one another, it is much more necessary that steps should be taken to clear the high road for him when he travels by motor in view of the speed at which he drives, and of the danger of obstruction resulting either from the carelessness or deliberate ill-will of cart drivers, to most of whom motor cars and motorists are an object of the most pronounced aversion. The only difference between the locomotive pilot and the motor pilot of the King, is that whereas the former travels a quarter of an hour in advance, the latter is run merely about 100 yards in front of the monarch's automobile.

* * *

Unusually large is the number of representatives of the Old World aristocracy who are visiting us this winter, and inasmuch as many of them are married and others very rich, they cannot be classed as fortune hunters. Among them are the Duke and Duchess of Manchester; the Viscountess Maitland, whose husband is eldest son and heir to the Earl of Lauterdale, Hereditary Standard-Bearer to the Crown of Scotland; Prince John of Hohenlohe, the Kaiser's envoy at the Court of Darmstadt, and his brother, Prince Frederick, whose wife is half American, her mother having been Miss Helen Moulton, of Albany, granddaughter of old Metz, who was so famous as a dancing-master in New York in the early part of the eighteenth century; Lord Ardee, son and heir of the wealthy and philanthropic Earl of Meath; the Right Hon. Sir Ernest Cassel, who is over here in connection with the scheme promoted by the Khedive to establish a system of trolley motors on the banks of the Nile; Titian-haired Lady Mary Sackville, sister of the Earl of Delaware, who is to spend a portion of the winter with her friend, Mrs. George Gould at Lakewood; the Marquis de Choiseuil-Praslin, son of the Duke of that name, the Duchess being a Miss Forbes, of New York; Prince Fushimi, the cousin of the Emperor of Japan, fresh from the battlefields of Manchuria, where he played a conspicuous role as general in command of one of the divisions of the victorious Japanese army; Count Schmettow, A. D. C. to the Kaiser; and any number of other German, French, and Italian counts, conspicuous among the number being Count Limburg Stirum, of Germany, Count Du Temple de Rougemont, who is marrying Miss Edith Devereaux Clapp this month, and Count Aarmand de Gontaut Biron, who is actively interested in motors. Last, but not least, are the two Royal Princes Louis and Anthony of Orleans, now recognized as scions of the House of France, but born as Princes of Brazil, being the sons of the ex-Crown-Princess of Brazil and grandsons of old Dom Pedro, the last Emperor of Brazil, whom they accompanied into exile when he was deposed and driven from his dominions some ten or fifteen years ago. They have been extensively entertained and will return to Europe at the end of this month carrying away with them very rosy-colored impressions of American hospitality.

* * *

But one thing was necessary to demonstrate the fact that the motor car had come to stay, and that was that it should be chosen by some one as an appropriate place for his first entrance into the world. This seal of approbation of the motor's fitness as a human accessory has now been given. For the other day a bouncing boy was born in a motor car on the Boulevard de la Chapelle, Paris. M. Louis Lesueur was driving along the thoroughfare in question when he noticed a young woman who had fallen unconscious in the road. He at once stopped, and, with the assistance of the passers-by, lifted her into his car, which he then started off at full speed for the Lariboisiere Hospital, which was quite near at hand. When he pulled up before the gates and descended from his seat to call the door porter, he gave a glance at the woman, and was astonished to find that instead of one passenger there were two, the second one being a newly born babe lying on the floor of the car and who announced his presence by a plaintive cry. Mother and child were at once admitted to the hospital, and when last heard of were doing well. The young woman, whose name is Laurent, has decided to christen her son "Auto."

* * *

December is of all months in the year the one most important to the debutantes, being the epoch of their formal presentation to society. There are a very large number of them this winter, many of them being pretty, and inasmuch as not only their parents, but also their relatives and their friends feel it their bounden duty to given entertainments in their honr, they may be said to contribute in no small measure to the brilliancy of the season. Conspicuous among them are Miss Corinne Robinson, daughter of Mr. Douglas Robinson and niece of the President of the United States; Miss Anne Ripley, daughter of the Sydney Dillon Ripleys and niece of James Hazen Hyde; dark-haired Miss Mildred Barclay, the blonde Miss Blanche Shoemaker, daughter of Mrs. Henry Shoemaker, Miss Constance Knower, whose engagement to Mrs. Astor's grandson, Henry Coleman Drayton, has already been announced, and Miss Anita Stewart, daughter of Mrs. Rhinelander Stewart, for whom Henry James Smith is to give a great ball as his new Fifth Avenue house, which formerly belonged to the late William C. Whitney, and which is perhaps the finest private house in New York. He has spent the greater part of the summer abroad in purchasing art treasures for its adornment, and the ball which will serve as a species of housewarming will attract much interest, as many will be curious to see the changes which it has undergone since the days when it was the scene of the extensive hospitalities of the late William C. Whitney.

* * *

Bitter complaints are heard in the leading automobile clubs of Europe regarding the abominable condition of the roads in the United States, and about the difficulties encountered by foreign motorists in getting their machines through the American custom-house. Quite a number of English and continental motorists brought their cars to this country last summer with the object of touring here, many of them having the intention of proceeding by road from New York to St. Louis in order to have a better opportunity of becoming acquainted with the land and its people than could be obtained when riding in a railroad train. But most of them gave up the attempt in disgust after covering a portion of the way, while others encountered so much trouble at the hands of the customs department that they preferred to ship their machines home without even taking them out of bond.

Table d'Hote $1.50 | CAFE DES BEAUX-ARTS | Suppers delightfully served
Specialties a la Carte | 80 W. 40th St. Bryant Park South | Three Orchestras

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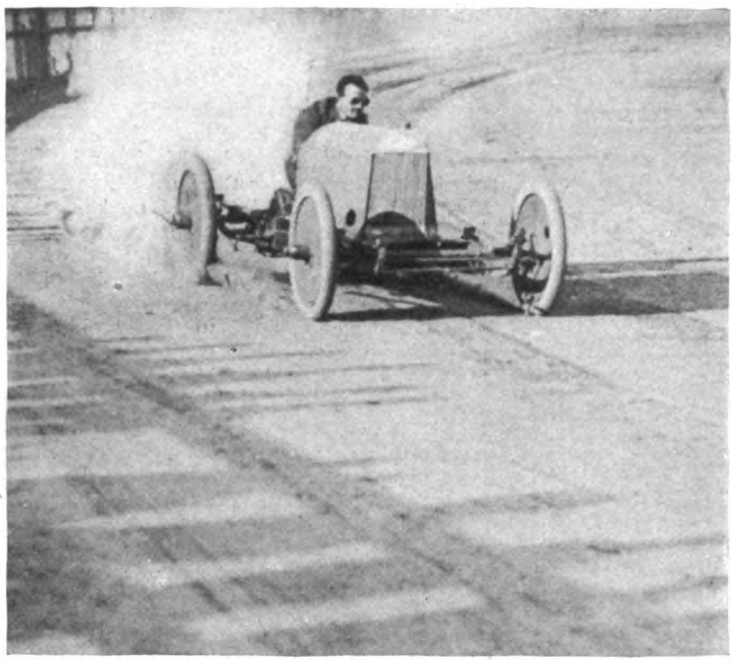


THE EMPIRE OFFICIALS

OF the permanency of motor competition one might hesitate to predict, but few there are who dispute that now "the race is the thing." Wherever the motor car comes into its own—and the uninterrupted progress is assuming a greater momentum every day—the enthusiastic motorists of the community gain the idea that a race meet is an expected form of entertainment in connection with the advance of the pastime, for the pleasure side of motoring temporarily eclipses the commercial feature.

It is true that the present unsatisfactory way of classification seldom results in close contests, but the gradual increase in speed is a substitute that will be acceptable until the limit of going is reached—a possibility of the near future. Speed for a distance carries with it the guarantee of endurance, but endurance does not necessarily mean speed. Therefore the maker who can advertise both qualities would seem for the moment to have an advantage over his rival who does not care to participate in the wild pace of the race. In addition, he gets the name of his car into print many times, and this constant repetition of a name is a form of publicity that likens itself to the inevitable hole in the stone from the ceaseless dropping of the water particles.

Oldfield remains as the king of the sport. He was quick to see the mistake of his Brighton Beach side-stepping, in which he had the wisdom to find no fault with his American-built flyer. True, the track might have been better, but it was good enough for young Bernin to snatch the sceptre from his rattled rival as he plunged past in an imported machine. Stung deeply by the avalanche of disapproval that followed his unsatisfying explanation—saturated with the dollar mark—Barney discarded his green coat—not for a yellow one, as a Brighton spectator had scornfully suggested—clenched the unlighted cigar more



BARNEY OLDFIELD AND HIS PEERLESS MARVEL

fiercely, went after Bernin and Sartori like a house afire. The thousands at the Empire course shouted themselves hoarse in the victory that fell to the Peerless driver, who might have gained added fame in robbing Kiser of the :52⅘ mile record, but preferred to wait until a week later at Denver, when :52⅕ resulted along with many other changes in the slate up to and including twenty miles in 18:45⅗.

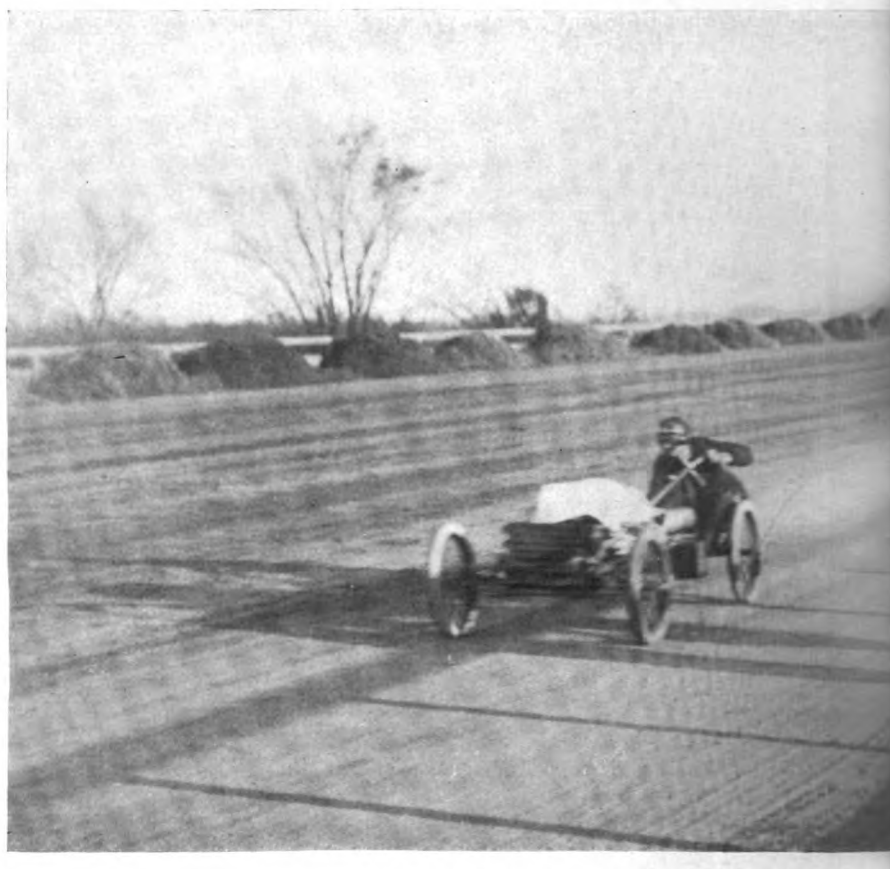


FULLER AND GARBUTT, THE LOS ANGELES RIVALS
Photo by Arthur Halliday.

The Race



That Election Day performance of Kulick and the 875-pound Ford, with one of its miles in 55 seconds, caused even the seasoned experts to sit up and take notice. Henry Ford had been responsible for the "999," once piloted by Oldfield and recently in hand by Newkirk—a youngster, by the way, who should have an opportunity an-



KULICK AND THE FORD SKIMMER WINNING THE

other year with an up-to-date racing conception. That skate of :39⅗ over the Lake St. Clair ice created some talk last winter along about "show time," and there was disappointment that the "freak"—it deserves the description—did not find its way to the Florida sands. But, if plans do not miscarry, there will be a Ford craft at Ormond-Daytona in January next. When the Empire patrons saw the unobtrusive German boy from Milwaukee two-step away from Bernin and Sartori and their heavy "foreigners" they could hardly believe their eyes, and, of course, they yelled in the good old-fashioned way. The 20-horsepower skimmer limped in the last couple of miles with half of its power useless, and the close finish—only a yard or so for the winner—made some of the onlookers believe that they had seen a race. But it was a case of one car going a bit wrong.

To go back to the Oldfield recovery of title by defeating Bernin, Sartori, and Thery. The visit of Thery, the International cup hero, could hardly have been more disappointing for himself and his friends, and exactly why he should have scratched his escutcheon in such a useless manner is not plain to those who give no heed to his beating by Sartori in a heat of the Yonkers race. Thery came too late for the Vanderbilt race, in which he should have been a starter, and he came too early for Florida's meet, for which he ought to return and show his true worth as one of the world's greatest drivers. The track game was new to him, and why go to certain defeat when the odds make success impossible?



E. KISER AND P. OWEN



TOD SLOAN

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ere is hoping that the Richard-Brasier star will cross for the carnival on the ocean oulevard between Ormond and Daytona. There will be doings a-plenty on that ideal urse, and among the new ones will be Bald and the racing Columbia, Webb and e latest Pope-Toledo, and Mr. Steck, a Pittsburg amateur, in his imported Dar-



TIONAL EVENT AT THE CLOSING EMPIRE MEET

acq. Mr. Steck was among the enthusiastic spectators at last winter's races.

It should be a great meet, this one, in January, at Ormond-Daytona—don't forget hyphenate the two beauty spots of the Florida shore, for one is just a trifle jealous f the other and both really figure in the success of the affair, and Burgoyne, the ener-etic, hails from Daytona, along with Parkinson, Peters, Seelye, and others equally aluable. It is safe guessing that the distribution of the events will be done in a anner that will satisfy those most vitally concerned—races open to all and races for ose who have their special motor rivalries. But this flurry over the invitation idea ould waken the Racing Board of the governing body to the necessity of immediate and serious consideration of some sort of an amateur definition, or at least some logical parcelling of those who would compete in motor sport. There should be open events, open to all—dyed-in-the-wool professionals, paid drivers of wealthy patrons, even these patrons themselves, and those in the trade. But there should be provision for the simon-pure amateur when he desires to compete with those who have absolutely no incentive to participate except the mere love of the sport. One might hesitate to include in this class any man with trade affiliations, for unavoidably he must advertise the car he makes or sells, and who is to decide whether he races for this purpose or for the excitement of the sport. It is a subject that the racing governors have evaded too long, and it now demands attention for the good of the pastime



ANK KULICK



ANNOUNCER PRUNTY

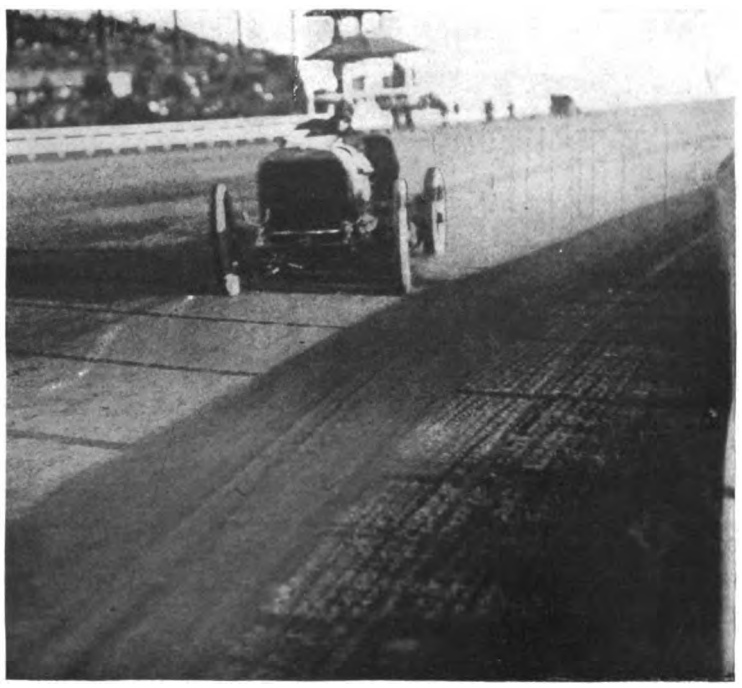
The type of amateur about whom there could be no question is represented by such a one as Frank Croker, who recently relieved Frank Garbutt, another like himself, of the so-called amateur mile record. Garbutt's mark of :58⅘ was reduced by Croker to :56⅘.

That America will be well represented in the 1905 International Cup Race seems to be assured beyond the least question of doubt. The American makers do not intend to go unrepresented two years in succession, and, beaten or victorious, there will be a Stars and Stripes trio of cars participating in the next motor derby of the world, this time scheduled to take place over the grand highways of France. Among the American makes that may be included in the elimination trials are the Pope-Toledo, Packard, S. & M. Simplex, Peerless, Winton, Columbia, Ford, Thomas and Royal, with several more probabilities. Certainly out of this list there should be racing conceptions capable of equalling in speed and endurance the product of the foreign makers.



THE EMPIRE CLUBHOUSE

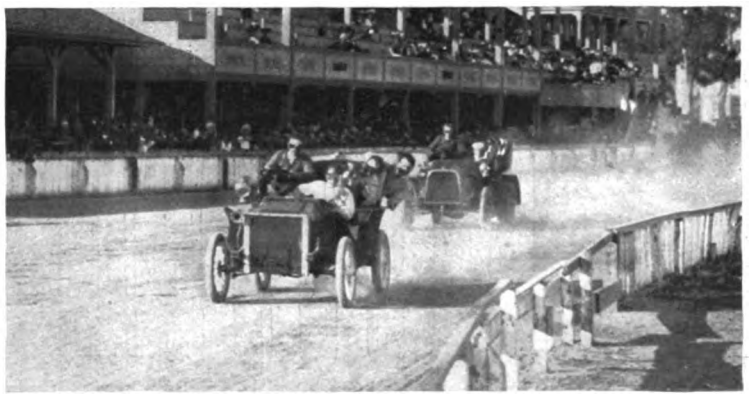
For drivers we have such good ones as Oldfield, Kiser, Kulick, Lytle, Schmidt, Webb, Bald and other promising professionals, though in an event like the International Cup Race there might be available an amateur contingent that would include Vanderbilt, Wallace, Bowden, Croker and Breese, any one of whom would drive an American car if he found one to suit his ideas; in fact, Croker has found one in the S. & M. Simplex. That a substantial delegation from the American motor world will find its way to France next summer is a certainty, for even now a few are making preparations for a trip to the other side



FRANK CROKER DRIVING THE S. & M. SIMPLEX

at this time. It may be that they will have an opportunity of viewing the winning of a cup by an American car on foreign soil.

Just another word to the Racing Board: Cut out that intermediate mile record business; the mile mark should stand by itself, alone and distinct and disconnected before or behind.



A WINNING "WHITE" AT A LOS ANGELES MEET
Photo by Arthur Halliday.

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STEAM'S PLACE IN MOTORING

Little Lessons in Motor Mechanics, No. 7.

By Victor Lougheed

While not so numerous as those driven by gasoline, motor vehicles in which steam is the source of power give excellent service, and such is the silence, flexibility, and power of this type that a great future is prophesied for it by its advocates, and its present is by no means to be neglected.

The power plant of a steam motor vehicle consists of two principal elements, one a *boiler,* for generating steam, and the other an *engine,* for utilizing the pressure of the steam to do work.

Steam Boilers are of many constructions. The simplest form is a plain, closed vessel, *a,* Fig. 52, partially filled with water, and the whole subjected to the heat of a fire. Under such circumstances, the heat sets the water boiling, and steam, under pressure corresponding to the heat, forms in the free space above the liquid. Because the heating surface of such a boiler is comparatively small, and consequently with it great power cannot be secured in small space, boilers usually have numerous *flues* passing through them for the passage of the heated gases from the fire, or else are wholly constructed of tubes.

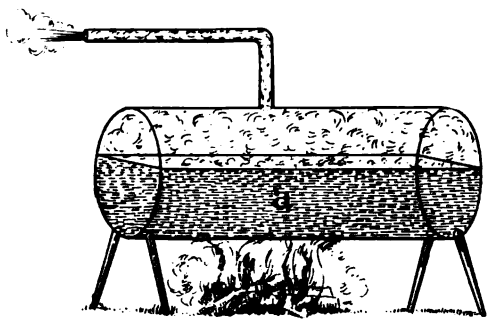


Fig. 52.—Simple Form of Steam Boiler

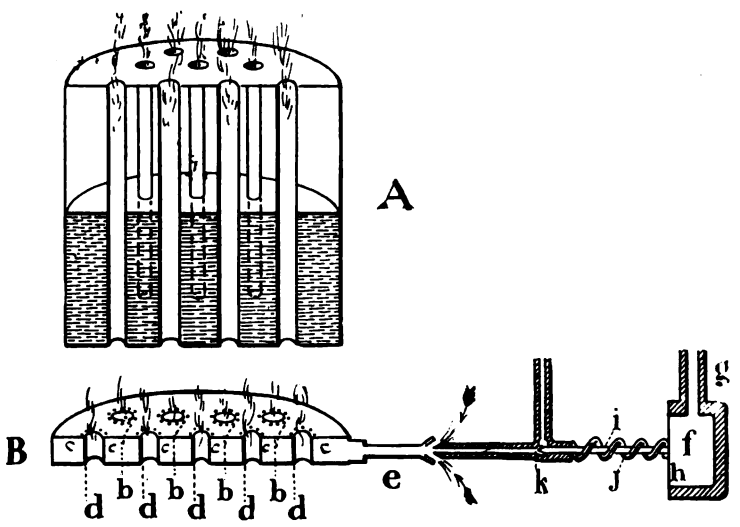


Fig. 53.—Flue Boiler, and Typical Gasoline Burner with Diaphragm Regulator

Flue boilers generally are built about as sketched in half section in Fig. 53, A being the boiler. A *water-tube boiler* is illustrated in half section, in Fig. 54. In this boiler, *a* is the main shell, and *b b b* are water tubes that conduct water from the base of *a,* down into the fire. It will be noticed that the short legs of these tubes open directly into the bottom of *a,* while the long legs rise above the water level. Water thus is carried down into the fire, heated, and rises as steam to the top of *a,* whence it passes by the pipe *c* to the engine. A rapid circulation is kept up by the effect of the heat on the water in the tubes, cold water always falling and warm water rising.

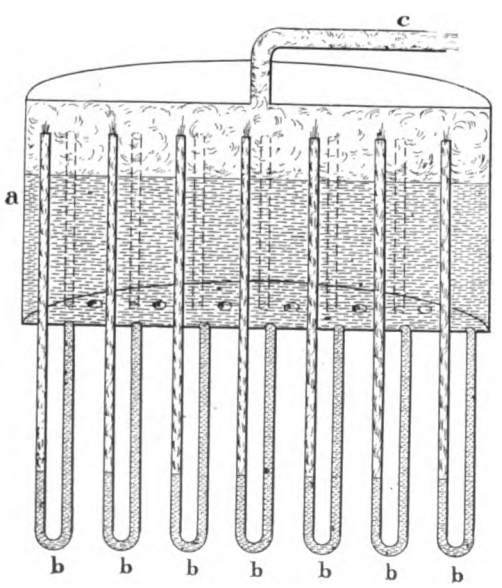


Fig. 54.—Water-Tube Boiler

Flash generators, Fig. 55, is a name given to a class of water-tube boilers in which the whole boiler consists of one or more long tubes, *a, b, c,* with thick walls and a small perforation through which water is constantly forced by a pump, *d.* In a generator of this type, the water enters cold at the pump end of the tubes and is emitted in the form of steam under very high pressure at the other. A generator of this type has but a small reserve power, because of the small amount of water it can contain, and it therefore is necessary to provide means for insuring plenty of steam when a large quantity is suddenly called for, as in the case of a vehicle coming from a level upon a long, steep hill. This is generally attained by the provision of a fuel-supply pump, *e,* interconnected with the water-supply pump, so that the instant more water is pumped through the tubes, a larger and hotter fire plays on the outside of them, the burner receiving more fuel. Hand pumping is, of course, necessary to start such a boiler, unless it already is filled, or is supplied from some source of water under pressure.

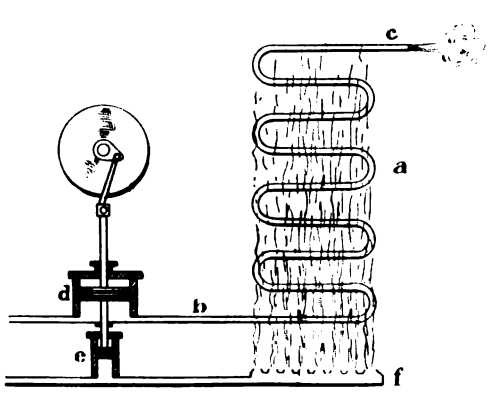


Fig. 55.—Plan of Flash Generator

Besides the necessity for increasing the area of heated surface, other modifications in boilers are introduced to increase the safety and facility of handling, and to prevent or minimize the formation of scale and incrustation from foreign matter contained in the water.

Steam gages are fitted to most boilers for the purpose of showing the pressure of the steam within them. Such a gage is illustrated at A, Fig. 56, while its internal mechanism is shown in detail at B, Fig. 56. In B, Fig. 56, *a* is a bent copper tube, closed at one end, but open at the other end so that it can receive steam from the boiler through the pipe *b.* The pressure of the steam tends to straighten out *a* to an extent proportionate to the pressure, the free end of *a* being connected through a system of levers and gears with the index hand *c;* so this hand shows very accurately by its position the number of pounds pressure to the square inch.

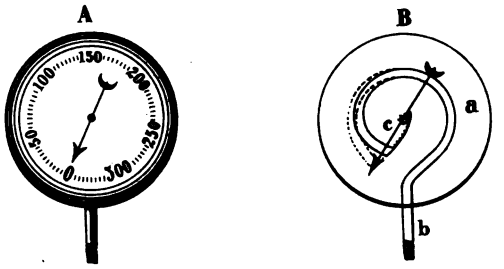


Fig. 56.—A Typical Steam Gage

Water glasses are provided on most boilers for the purpose of showing the height of water within them. A water glass is shown in Fig. 57, in which *a* is the boiler and *b* is a glass tube, a foot or so long, set vertically between two pipes, *c* and *d.* These pipes permit of free communication between the interior of the glass tube and the boiler. Shut-off cocks, *e* and *f,* provide for preventing the emission of steam or water from the boiler in case the glass is broken, and until a new one is placed.

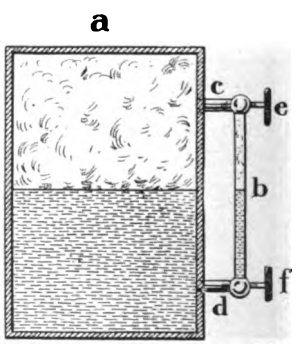


Fig. 57.—Water Glass

Safety valves are placed on boilers to permit the steam to escape in case it reaches a dangerously high pressure. Typical safety valves are illustrated at A and B, Fig. 58, A being held in place by the weight and B being held by the spring. Valves of the spring type often are called pop valves. Referring to A, Fig. 58, *a* is the valve proper, consisting of a tapered plug seating in the opening *b* from the boiler, and held in its seat by the downward thrust of the lever *c,* caused by the weight *d.* A similar principle applies in the case of B, except that in this valve the pressure of the spring *d* is substituted for that of the weight. It is evident that, with either of these valves, when the steam rises to a pressure sufficient to lift the weight or compress the spring, as the case may be, it will flow out of the boiler until the pressure is so far lowered that the valve can close again.

Fusible plugs, e e, Fig. 58, are plugs made of metal of such a low melting point that if they become heated above what is the normal temperature of the boiler when it contains water and steam at a maximum safe pressure, they will melt out, permitting the water and steam to rush out upon the fire quenching it, and at the same time relieving the

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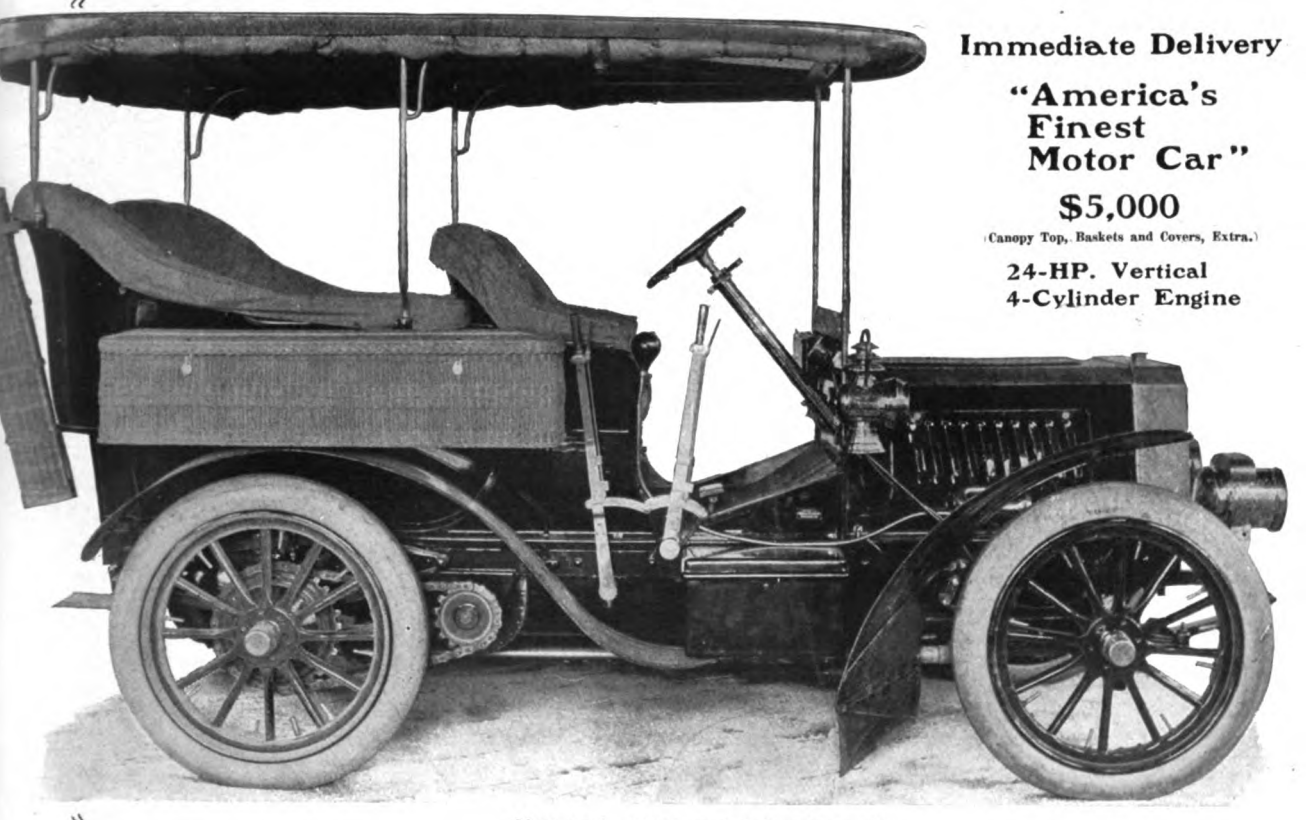
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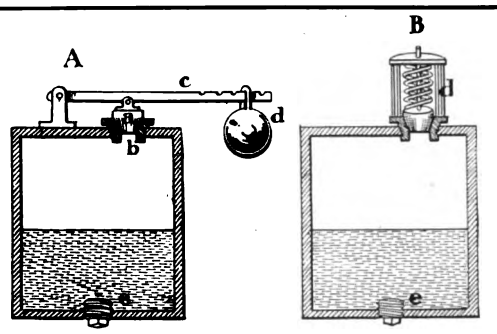


Fig. 58.—Typical Safety Valves

pressure. A fusible plug also acts in the same manner when the water is permitted to run too low in the boiler, in which case the plug melts as soon as it is uncovered.

Burners for motor vehicles almost invariably use gasoline, kerosene, or some similar liquid hydrocarbon for fuel. A well known form is illustrated in cross section in B, Fig. 53, in which *e* is a pipe carrying vaporized fuel and air, and *c c* are spaces in the burner in which the fuel is contained immediately before its combustion. Most burners are built of cast iron or of sheet-metal plates, and have circles of small perforations, *b b*, communicating with the interior, each circle surrounding a larger opening, *d d*, passing clear through the burner. The gasoline, as it is forced through the holes in practically a vaporized condition and already mixed with air, at once intermingles with more air rising through the large openings in quantity amply sufficient to keep up a hot combustion. Thus the whole space about the burner is filled with a very hot, blue flame which insures rapid steaming. At *e* is a small nozzle, into which the fuel is atomized and mixed with a considerable amount of air, even before it reaches the burner.

Diaphragm regulators are used in connection with burners, for the purpose of controlling the flow of fuel in accordance with the power demand. A typical example is shown at C, Fig. 53, in which *f* is the diaphragm chamber, into which steam is conveyed by the pipe *g* leading from the boiler. The diaphragm *h* is thus forced out when the pressure rises too high, and is forced back by the spring *i*, when the pressure drops. This gives a to-and-fro movement to the rod *j*, by means of which the needle valve is opened when the pressure drops, and closed when the pressure rises. Consequently, the fuel supply always is kept proportionate to the power demand, which directly varies the boiler pressure. The fuel is forced from the main tank through the pipe *g*, by air pressure or any other suitable means.

Steam Engines vary much in detail, but little in principle. A typical single-cylinder, double-acting steam engine is illustrated in Fig. 59, in which *a* is the cylinder, *b* the piston, *c* the crosshead, *d* the connecting rod, *e* the crank, and *f* the rotating shaft. The function of these different parts is fully explained in a previous lesson—No. 3, on Gasoline Engines. The steam comes from the boiler through the pipe *g* and its admission to the cylinder is controlled by the slide, or D-valve *h*, which is driven from the eccentric *i*. This valve is so designed that it admits steam first to one end of the cylinder and then to the other, thus driving the piston back and forth as long as the throttle valve *n* is kept open. After a cylinderful of steam has done its work in forcing the piston one full stroke, it is exhausted into the atmosphere through *j* or taken thence and condensed to water again by being passed through a condenser, Fig. 60, whence it is taken to be used in the boiler, this cycle being kept up indefinitely. A steam engine is termed single-acting when steam is admitted to but one side of the piston, the other end of the cylinder being open, as in the case of a gasoline engine. Such engines possess a number of advantages from the standpoint of simplicity, lubrication, etc., and for this reason are to some extent used.

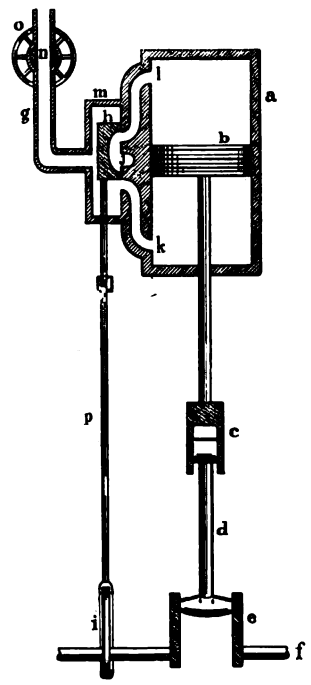


Fig. 59.—Steam Engine

The operation of a D-valve in detail is as follows: *h* being the valve, *k* is a port communicating with one end of the cylinder, *l* is a port communicating with the other end, and *j* is a cup-like depression in the valve seating, communicating with the exhaust passage, which is not shown, being at one side. When the valve is in the position shown, steam from the steam chest *m* enters the port *k* and forces the piston *b* to the right. At the same time, the previously used steam in the other end of the cylinder passes out through *l* into *j*, and out through the exhaust pipe. By the time the piston has reached the extreme right of its travel, the valve stem *p* has been forced to the left by the action of the eccentric *i*; steam now enters *l* and the exhaust is by way of *k*, after which the first position is repeated, and so on indefinitely, the piston *b* making rapid to-and-fro strokes that communicate a rotary movement to the shaft *f*.

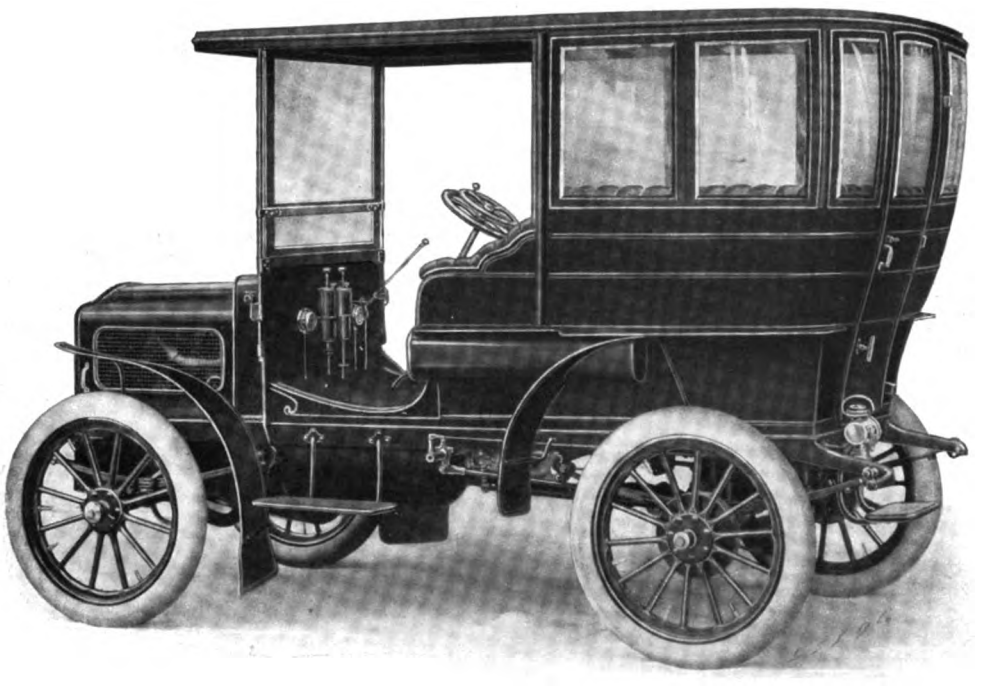
Most steam engines are made to work with cutoff, that is to say, the full pressure of the steam is not followed up after the piston clear to the end of its stroke, but the valve is so set that by the time the piston has made one-half, or two-thirds, or some other fraction of its stroke, no more steam is admitted. The piston is then driven the rest of the

(CONTINUED ON PAGE 48.)

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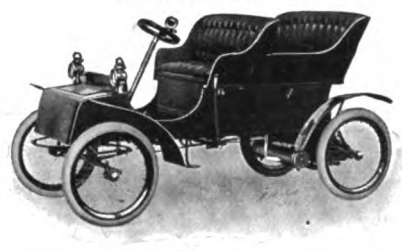
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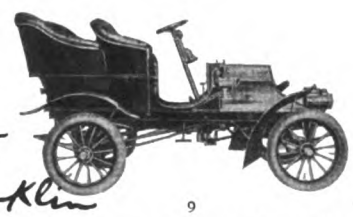


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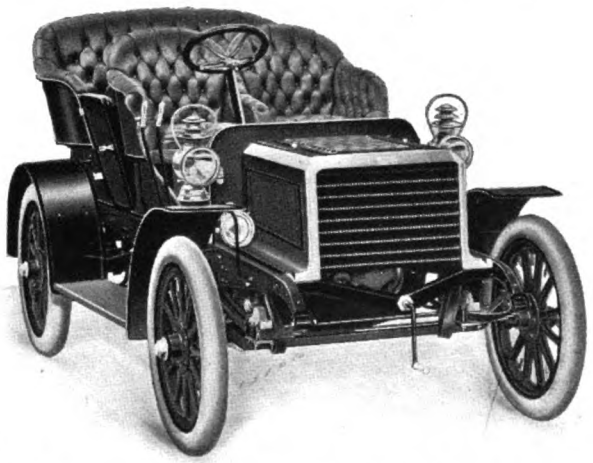
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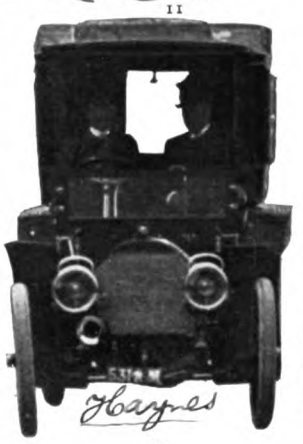
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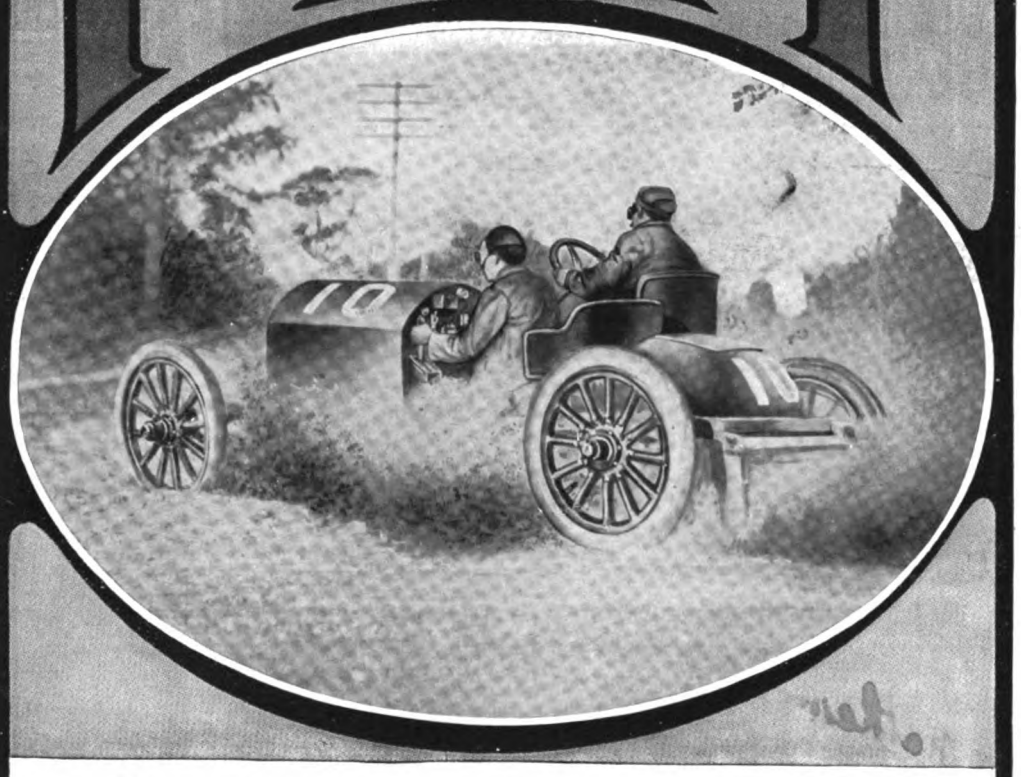
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Steam's Place in Motoring

(*Continued from page 44.*)

distance by the expansion of the steam already in the cylinder, but which is not added to. With locomotive and motor-vehicle engines, a lever for varying the point of cutoff within wide limits affords an excellent means of regulating the power to the varying demands that are made upon it.

Condensers are of various forms, but a typical one for motor-vehicle use is shown in Fig. 60. This condenser is in many ways similar to the radiators used for cooling gasoline engines. The steam, exhausted from the engine, enters the condenser by way of the pipe *a*, and fills the space *b*. From *b* it passes downward through the pipes *c*, which are closely strung with thin copper disks that present a great surface to the air, and thus are kept cooled practically to atmospheric temperature, despite the hot steam entering them. In some steam cars, the cooling is assisted, as in the radiator of a gasoline car, by a fan that rapidly draws air through the spaces between the

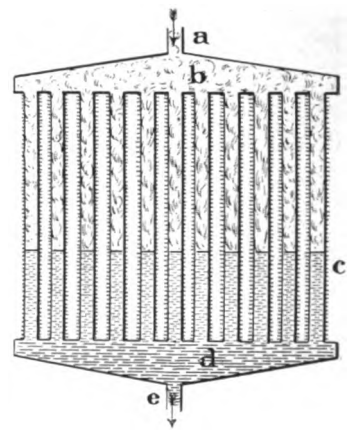


Fig. 60.—Condenser

tubes. At some point in its passage through the air-cooled pipes the steam is condensed to water, and as water it fills the space *d*, whence it may be redrawn for use in the boiler. The water thus is used over and over again, with only very little waste, and the necessity for frequent refilling of water tanks is avoided.

The chief difficulty in using a condenser is that the lubricating oil, which is carried by the steam from the engine to the condenser, has a more or less serious tendency to obstruct the latter by depositing in it in the form of a hard, closely-adhering gum, very difficult to remove. This gum, however, can be largely avoided by the use only of suitable oil.

Multi-cylinder steam engines are often met with, and two-cylinder engines are much used in motor cars, because they avoid the possibility, that always exists with single-cylinder engines, of a connecting rod stopping upon a *dead center*—in such a position that the steam pressure cannot impart a movement in either direction to the connecting rod and crank.

Compound engines, as distinguished from *simple* engines, are ones in which two or more cylinders are employed, but in which the exhaust from the first cylinder is admitted in the manner of live steam to the second cylinder, etc. By this method great efficiency is secured, the steam being expanded in several gradual stages to practically atmospheric pressure, and all possible work thus being derived from it. Most compound engines in motor-vehicles are so arranged that steam direct from the boiler can be admitted to the low pressure cylinders when desired, thus temporarily increasing very materially the power available.

Throttles, in one form or another, are used to control steam engines. A throttle consists simply of a shutoff, *n*, Fig. 59; valve, connected with a wheel, *o*; lever, or equivalent, by means of which the admission of steam from the boiler to the engine may be varied from the maximum to the minimum, exercising a corresponding control over the power output. Reversing of steam engines is generally effected by the same lever that controls the point of cutoff, although on motor vehicles pedals sometimes are made to perform this function.

The next lesson will treat of "Storage Batteries and Electric Motors."

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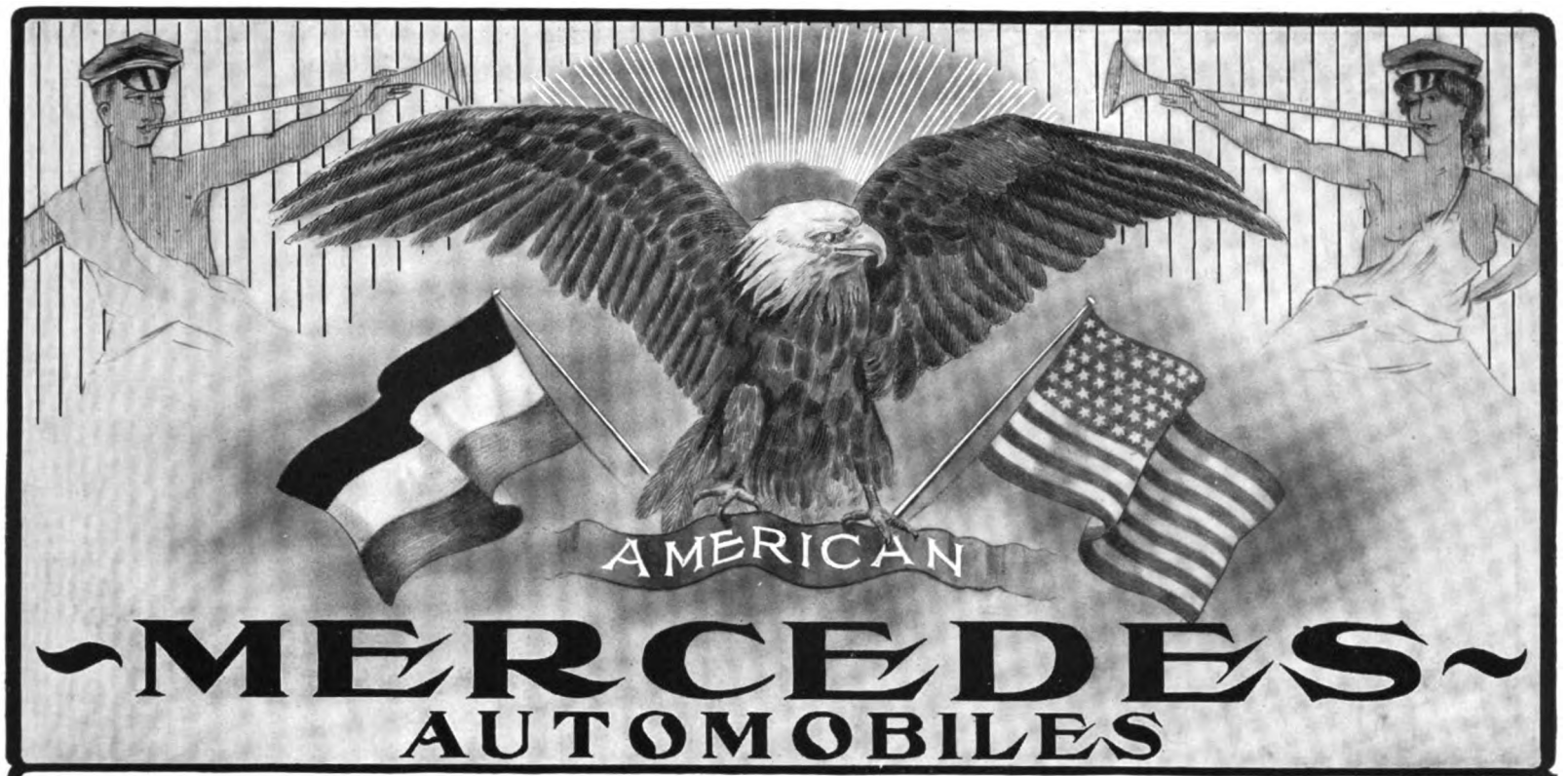
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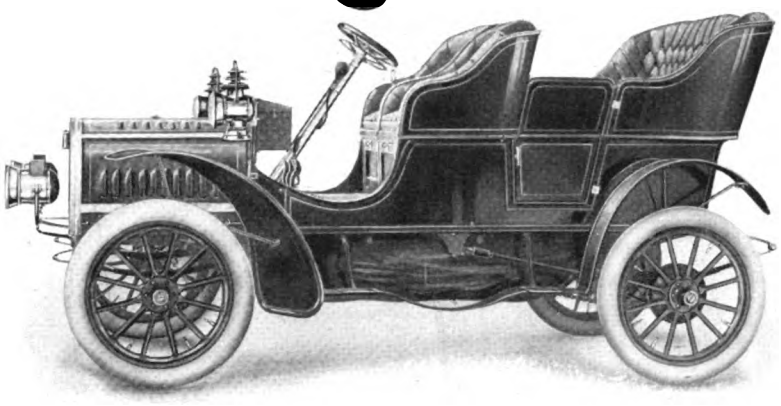
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HINTS ON ECONOMY IN MOTORING

By Hon. John Scott Montagu, M.P.

Editer "Car Magazine"

There are many persons who buy cheap cars on the score of expense, and when they have got them do not know how to run their vehicles economically, and there are others who, having paid a good price, yet wish to cut down running expenses. But few motorists realize that there is a comparatively large saving to be effected in the manner in which the cars are run.

There are some automobiles which, owing to peculiarities in their construction, must necessarily be expensive on the road—that is, on account of weight they eat up tires, or are expensive with current and petrol, or are always breaking down in small details in the machinery necessitating repairs or renewal. I shall endeavor to make the following remarks applicable to all petrol cars from humble £150 voiturette to the princely £2,000 car.

The Cost per Mile

The small car, as a rule, costs somewhere about threepence per mile on the road, the bigger ones from sixpence upward. It must be evident, therefore that the mileage cost—the cost of car-miles—ought to be a matter of serious consideration to every motorist, and that not only the initial price of the vehicle, but the expense attendant upon the daily wear and tear should be considered, especially when the car is much used.

Horse-power and Tires

First of all I will deal with that most expensive part of the car—tires. Let me emphasize that unless the car is very light indeed, the so-called cheap tire is not cheap in the long run. Many makers and motorists, too, make the mistake of fitting too small sizes—for instance, 90 m.m. tires on the wheels of vehicles which ought to have tires of 120 m.m. Again, many of the small voiturettes which use a tire designated as 65 m.m. would run easier and the tire bill would be less if 90 m.m. tires were used. A good margin of strength in the tire is not only an element of safety but also an element of economy. Tires having such a margin are less liable to burst and will wear much longer. I should be inclined to lay down a rule, irrespective of weight, that on any car, having engine-power of over 20-horsepower, 120 m.m. tires should certainly be used, and it is only when one is using an engine of less than 6-horsepower that anything less than 90 m.m. should be fitted. From a weight point of view, cars seating upward of a ton with load should have 120 m.m. tires and only those under 10 cwt. should use any size less than 90 m.m.

The Tourist's Tire

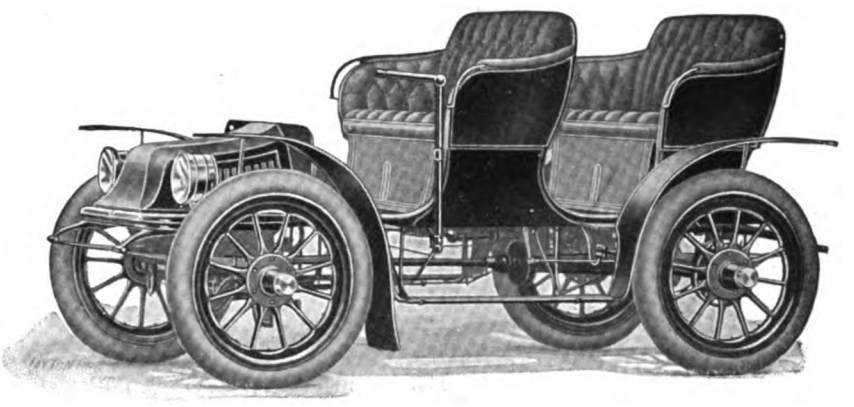
So much for the size of the tire. As to its use, it should first of all be remembered that a fully pumped up tire lasts much longer than a partially inflated one, and if you want your tube inside to run many miles without trouble, put plenty of French chalk between the cover and the tube. When touring, which generally means that the tires are carrying a heavy load, it is as well to stop every two or three hours at the outside in warm weather. Such a stop can be utilized for the purpose of meals, lunch, or tea, or to admire some particular piece of scenery. If water is handy, cool your tires with a bucket of water, and if a convenient ford should present itself, which looks passably shallow, a run through at a snail's pace will be of great advantage both to the tires and rims. There are other things to be remembered about tires. See that your clutch is not too fierce, and take care to start and stop gently. It is silly, for the sake of mere swagger, when traveling at a speed of fifteen or twenty miles an hour, to pull up in a few yards, and it is an expensive luxury, for you will immediately see the result in your tire bills, and almost certainly come to the conclusion that this species of folly is not worth the extra money which has to be paid for it. Then, again, when round-

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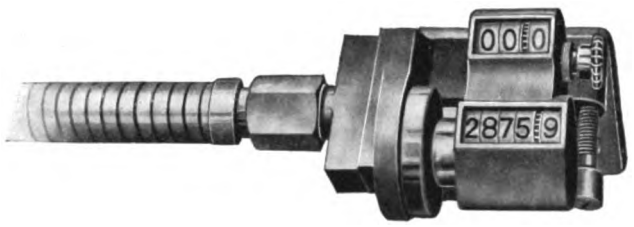
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ing corners, especially where there are rough stones, reduction of speed is essential if you wish to preserve the tread of your tires. Nothing is so apt to cut a tire as rounding corners, where there is new or loose metal, at a high speed, especially with engine-power on. If the corner is a really sharp one, slow the car down *before* you quite come to it, then take off the brake, and let the car glide round, a process which will do away with a good deal of the screwing action on the tires, and also ease your differential, which often is made a bit light for its work. Again, when patches of new flints or sharp unrolled macadam are met, even where the road is straight and wide, ask your passengers, presuming they are males, to walk for a few yards, then run the car at the patch at a fair speed, take your clutch out as your driving wheels reach the beginning of the loose metal, let her then slow down, say, to second speed, keeping one wheel, if possible, on the edge of the road, if unmetalled, and you will reach the other side with possibly only two or three small cuts, or if you are lucky with no cuts at all.

The Too Zealous Gardener

Again, there is a rule which should always be observed by those who own country houses, namely, that the gardener's broom and rake should never be allowed to make itself evident near the front door or where cars habitually pass to and fro. I have driven up to many houses where the owners are keen automobilists, and yet have observed that the worst piece of road encountered for many miles is the last fifty yards up to their own door, the gravel having been careful raked up by the gardener full of good intentions as to the clearance of weeds, but dealing death and destruction to tires. Rather order your gardener to roll the loose stone in, not rake the loose stone out. You will then not only find reduction in your tire bill, but will earn the gratitude of your brother-automobilists who call upon you.

The Tire Scraper

Lastly, there should always be on the tires some sort of scraper, which will save many a puncture and eradicate the splinters which arise from flints, sharp but small stones, thorns, nails, etc., which stick into the tire but do not penetrate very far on the first round. As a final word, do not let your car stand on an oily floor in your motorhouse. Let the wheels rest on clean sand or slightly damp sawdust, for oil and grease are most destructive to vulcanized rubber. Also have the oil which comes from the axle boxes, etc., wiped off the tires at the end of every day's run.

Consumption of Petrol

Now I come to the second but not less important part of the motorist's mileage bill, consumption of petrol. First of all I would say that the object of every motorist—when not racing—ought to be to cover the greatest number of miles with the least possible number of explosions. If the engine is properly water-cooled and the contact-breaker is accurately adjusted, no difficulty should arise from an engine whose speed runs down to, say, four or five hundred revolutions. The average two or four-cylinder engine reaches 1,500 revolutions, with an average during a journey of, say, 800 to 900 revolutions maximum, but a large number of hills can be surmounted without changing on to a lower gear if the sparking is slightly retarded even though the engine may run down to quite a slow speed as above. It is hardly necessary to add that to allow an engine to race under any circumstances is very wasteful. Again, nothing is more expensive in petrol, and shows such want of understanding, as the habitual use of a mixture in which there is too much petrol, and not enough air. Err rather on the other side, and you will be well rewarded by having clean valves, less heat developed in the cylinders, and a longer life for the piston rings, valves, and all the parts which come in contact with flame.

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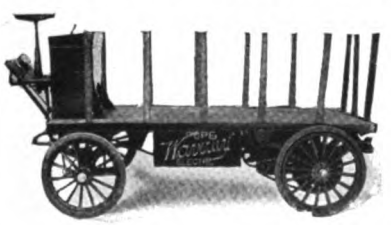


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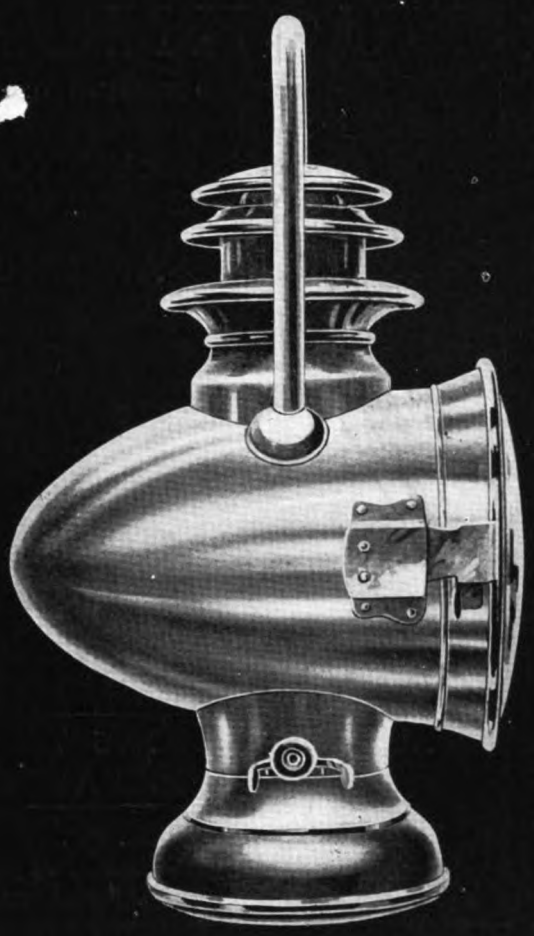
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hydraulic as in the case of the Napier, an auxiliary air supply is, I think, nearly always advisable. There are many days in the summer when the atmosphere is hot and dry, and the air passing through the carbureter will absorb petrol almost too rapidly. These are just the days also when you will be covering most miles. If, also, speed is not required, but economy, when, for instance, the car is going empty to meet the owner or his guest at a station, the auxiliary air supply will mean that two or three miles more will be run by the car on a gallon than would be the case had there not been such an addition. A great deal of unnecessary petrol which is used in this way may thus be saved by proper adjustment of mixture. The thinner the mixture, the more the sparking should be put forward, and a thin mixture with ignition well forward when the engine is running at a fair speed seems to produce at any rate on the road almost as much speed as when the throttle is fully open.

Other Ways of Saving Petrol

Then petrol can also be saved in other ways. Given a fairly long descent, the gear can be thrown out or the clutch withdrawn and the speed of the engine can be reduced to the lowest possible limit. Where the hill is really a lengthy one the current can be shut off and the engine stopped, thus allowing it to cool, with the additional advantage of the saving in petrol and current. It is possible, sometimes, to run for two or three miles free-wheeling, as a cyclist would say, and there are some descents not really steep in which, if a fair speed is attained at first, a considerable distance can be covered with the engine entirely stopped, saving lubricating oil, current and petrol alike. These may all seem small matters to some motorists, but in the course of a year these small savings mount up more largely than one would imagine. If a record is kept of the miles covered, and the gallons consumed, one is often surprised. Any one following out these hints will certainly find a sensible diminution is the amount of petrol required to propel the car per mile. Unless, also, the carbureter should be a very sensitive one, or the automobilist wants to always obtain the greatest degree of efficiency, petrol with a gravity of 700 and upward, will be found more economical, possibly not in quantity but in price. I have successfully run day after day on a 22-horsepower Daimler, with petrol of over 720 specific gravity, and, though possibly there is not quite the same ease initially in starting the engine, there is no perceptible difference in the power developed after five minutes on the road.

Concerning Gear

Closely allied with speed and economy, in petrol, is the question of gear. In a flat country a high gear is a great economy, enabling the car to cover long distances at a time with a less number of explosions than with a low gear. In a hilly country, one can lay down no rule, for it may be possible to negotiate a long hill on the second speed, with a small sprocket, but be forced to use the lowest gear with a larger one. It is a safe rule, however, that so long as the engine continues to revolve at a fair speed, there is no necessity to change the gear.



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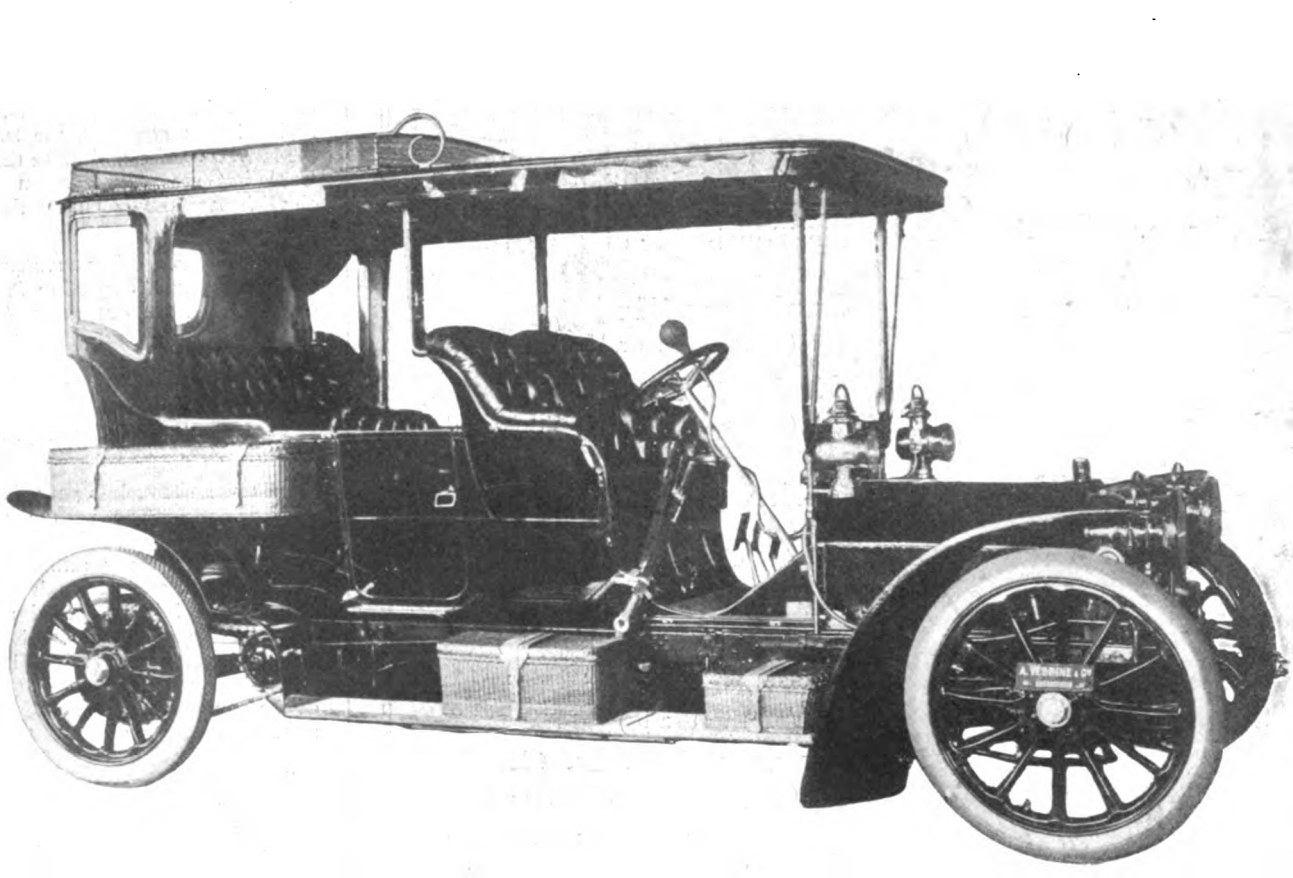
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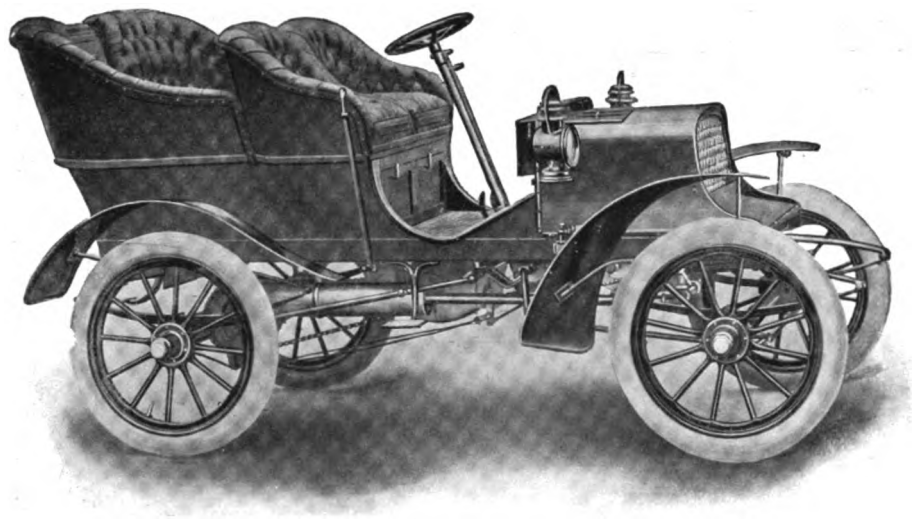
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THE GOSSIP OF THE ROAD

By Avant Courier

The details of the 7,000 mile motor ride made by Mr. and Mrs. C. E. Wilkins, and A. R. Bostwick, of Omaha, Neb., completed in seventy days, are full of interest, especially to those whose touring goes back to the old days of the post-roads. For instance, they made the trip the whole way with the same Winton car and driver; in the old post-days they would have had to entrust themselves to at least 840 different post-boys, not one of whom would have remained with the party much more than one hour, for a "post," in the old days, did not cover more than eight miles, at the end of which the post-boy unhitched his pair and another boy took you on; number one posting another party later in the day back to his original point of departure. And so the cycle would have continued, day after day, new drivers, new post-houses, and a new bill to pay a dozen times a day. Before they completed the circuit they would have had 1,680 horses attached and detached from their carriage. It makes quite an interesting sum: 12 stages a day of 8 miles each = 96 miles; each day would, therefore, call into requisition 24 horses; 70 x 24 = 1,680. Of a verity, a motor which will do all this work expeditiously, comfortably, safely, and economically is well entitled to its definition of a "twenty horse" or higher power. If the Wilkins motor were to be called a "1,680 horsepower," and its driver a "840 post-boy power," they would be fairly entitled to the distinction.

* * *

Does the absence of all law but common decency, and common sense, restrain the motor driver better than much law? Possibly it does! Too much law provokes human nature to break it. Kipling notices, as one of our national characteristics, the tendency "to flout the laws we make, and make the laws we flout." Cold fact seems to confirm it, to wit: The English law simply enacts the common sense provision that

"If any person drives a motor-car recklessly or negligently, or at a speed or in a manner which is dangerous to the public, having regard to all the circumstances of the case, including the nature, condition, and use of the highway, and to the amount of traffic which actually is at the time, or which might reasonably be expected to be, on the highway, that person shall be guilty of an offence."

and in the event, last year, in the metropolis, comprising a circle with a radius of fifteen miles every way from its centre, and a population of nearly seven millions, only two fatal accidents occurred through motors, and only 84 cases of injury, out of a total of 10,202 street accidents. An appeal to honor in the place of a challenge to beat laws which relate to conditions which must vary with every hour of the day, and every block on an avenue, may, after all, be the surest way to safety.

* * *

Sometimes the layers out of motor touring routes are anathematized for including in them even the smallest length of roads over which the ordinary trolley car whizzes. To say nothing of the fact that such roads are uniformly the best in condition, and the least likely to have unnecessary hills, they have the additional advantage that all along their route they have accustomed the horses using them to the sights and sounds so like the rapid moving, flare-headed motor, as to reduce the occasions for muffling and stopping to a minimum. A factor so important as horses "immune" to the motor scare, goes a long way to compensate for any other difficulties they may create, and justifies "follow the car line" as a tourist's direction, opinions to the contrary notwithstanding. Another point is that the trolley routes are better provided than are the byways with the wherewithal to cheer both man and motor. The motorist should leave the beaten road when seeking experience, but stick to the main highway when he desires to travel.

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"STEVENS-DURYEA" GASOLINE AUTOMOBILE

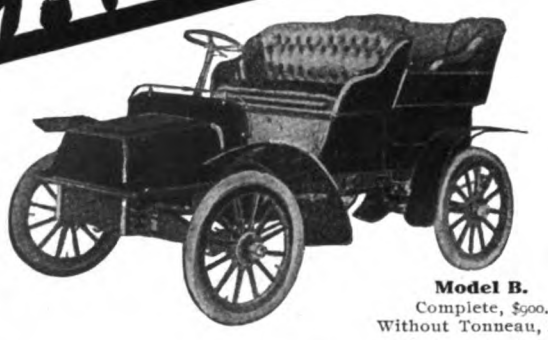


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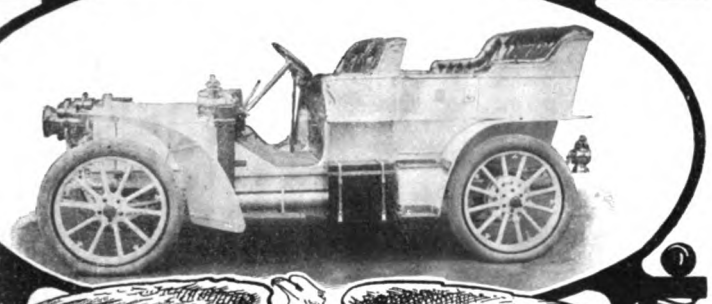
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2nd	20 h.p.
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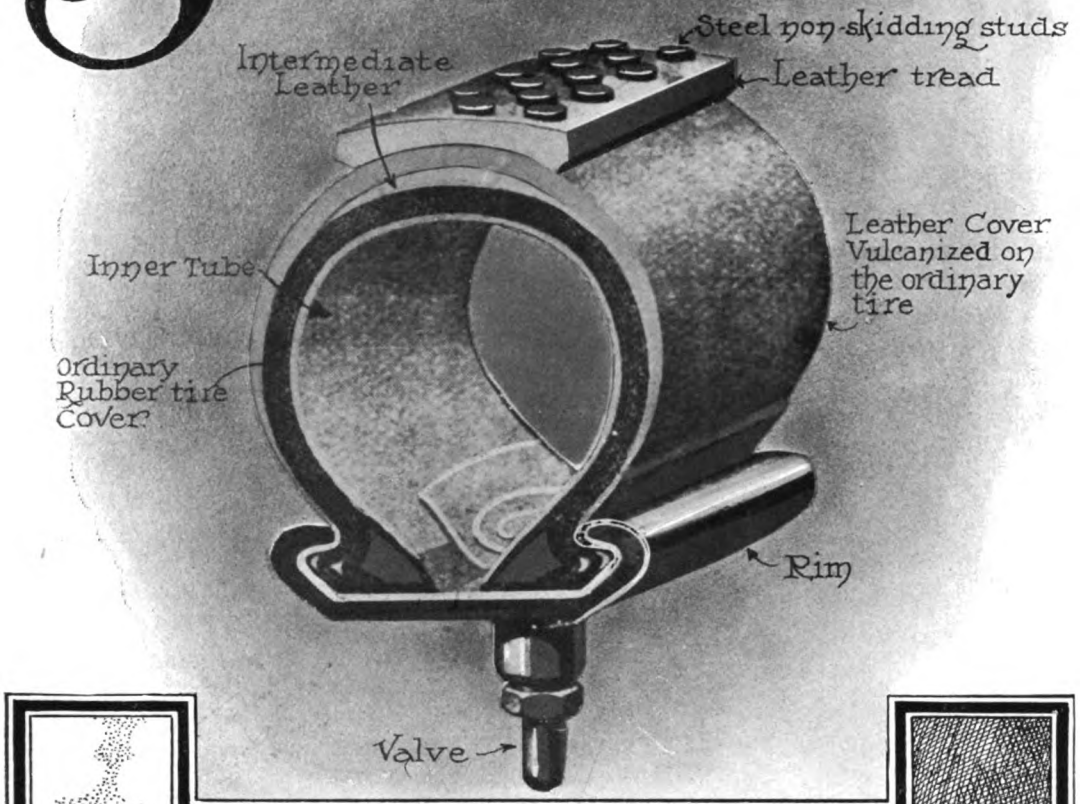
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Through Japan in a Motor Car

(*Continued from page 32.*)

the sodden walls, flash silvery gleams from the nickled parts of the machine, and make rotund diamonds of the drops of water splashing methodically to the floor. There is no retreating, so with a pair of protesting eyes that feel as if twin daggers were sticking in them, I reach the exit, spotted as a leopard with liquid mud, a tumult in my buzzing head, and vengeance in my heart.

A well-done-thou-good-and-faithful-servant smile that would have melted the heart of a hyena distorts the face of my tormentor when my blinking eyes discover him. Disarmed by his evident desire to please I grudgingly drop him a meagre reward, then, anxious to be quit of such satanic inventions, I shut off steam and coast down a winding but favorable grade that takes me clear of the hills and far into the level country beyond.

But for the fact that the Oigawa (Oi River) must be repeatedly crossed, the run from Shizuoka to Nagoya, a trifle above a hundred miles, could easily be made in a few hours. For the Tokaido runs due south through a fairly level country covered by an extensive system of connected paddy-fields, which in turn are bounded on the south by a serrated range of blue-peaked hills.

On coming to Hamamatsu I find it decked in all the bravery of gala attire. A matsuri—one of the village festivals with which the calendar bristles—is in progress and throngs of chattering people pulse through the narrow streets. Gaily dressed fakirs, yellow-robed priests, itinerant samisen players, and blatant squid venders elbow the crowds of happy folks, while a remarkably agile tight-rope performer invites their attention upward to a varied exhibition of his aerial skill. Oval-faced Japanese ladies clad in imperial lavender gowns, women of the commonalty—powdered till their olive complexions are blanched like the face of a clown— shaven-pated and tufted-haired babies—chalked from head to heel—and boys in the spangles and clothes of buffoons add their quota of color to the scene. High in air from every availabde pole float strings of paper lanterns, wind-swollen bream and carp, wisps of symbolical rice straw, silk and paper kites and flags, all jumping and fluttering in the quick sea breeze. At convenient corners and in suitable cul de sacs are elevated platforms of green bamboo, and in these gratuitous theatres women and boys, clad in burlesque apparel, recite stories and act pantomimes dear to the native heart.

Along a paralleling street through which I pass to escape the crush of the crowd is a double row of theatres, one side of each flush with the street. An additional drop curtain in lieu of a wall separates the players from the open-mouthed rustics without.

Like the ingenious railway peanut venders, who drop hot appetite-openers in the passengers' laps and then come round to supply the demand, the Japanese "barker" eggs on the sluggish public by raising, at intervals, the intervening curtain, exposing the glittering interior, with all its charms, to the greedy gaze of the penurious crowd. The comfortably seated and applauding spectators; the infantile prodigy treading the revolving globe; the hysterical female pursued by the unwearied villain, the intelligent shote; the man whose arms are bound under his shirt and who writes with his feet; these and similar edifying sights are adroitly exposed until the money burns in the kummerbunds of the excited hayseeds. Succumbing to temptation, one after another resuscitates a copper two-cent piece, exchanges it for a hieroglyphic-covered strip of wood as large as a shingle, and passes through the guarded turnstile.

The motor car and its occupant are extraordinary sights to many of the country folk and a compact mass of men and women dog my every movement. There is something about my personal appearance immensely amusing to these yokels, for the first sight of me invariably provokes a violent explosion of laughter. Women nudge their neighbors and chuckle delightedly at some tenuous joke, the rudiments

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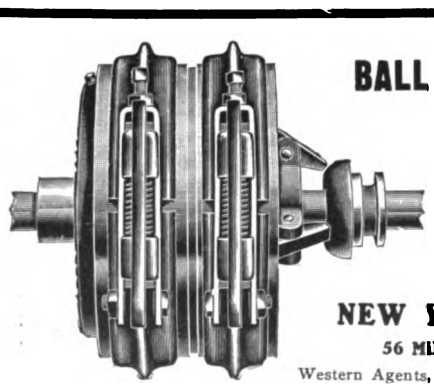
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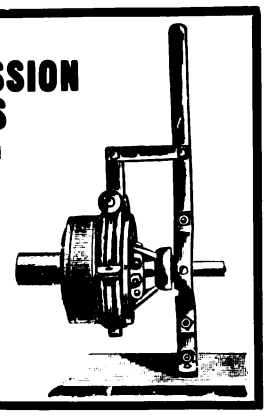
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of which are too obtuse for my barbarian brain. The terror-stricken babies howl despairingly as I pass near them and the country boys immediately save themselves by diligent flight. One tickled old man who has become separated from his spouse scuttles off to presently appear leading her by the hand. He has evidently told her to close her eyes and open her mouth in anticipation of something good. The fugitive expressions on his wrinkled and quivering face as he "springs the joke" on his unsuspecting wife are my recompense for being thus exhibited. The dear old creature laughs until the honest tears run from her eyes, and I doubt if there was ever a more equitable arrangement of take and give.

Of all the queer lands on the face of this globe, Japan, since the blighting hand of civilization touched it, bears the palm for incongruous costuming. To occidental eyes some of the country folks have the narrowest escape from being positive freaks. From the starkest nudity to Joseph's coat is the comprehensive scale followed in the matter of clothes. Their manifest belief that beauty unadorned is adorned the most is less a voluntary transgression of the law of pudicity than the effects of an education which teaches them to call a spade a spade, to have no prudery and to harbor no physical secrets from each other. The poet sings of the sea that bares its bosom to the moon. The Japanese do not discriminate in favor of the moon; a doubly bare fact which all the world may note as it passes through Japan.

By quitting the Tokaido and speeding along the beach, for hours after leaving Hamamatsu, I have but the whirring machinery and the murmur of the sea for company. Twilight finds me still far from my intended halting place, but the witching beauty of the sea and land effaces every thought of food and rest.

One by one the stars blink out to watch the rear guard of day steal silently down the western slope. From the east a tumultuous wall of shade rolls noiselessly over the landscape, filling the woods and valleys with an ever-deepening gloom. Only the indistinct barking of a restless dog mars the hushed expectancy of the hills as the increasing shadows rush onward, and this sound dies away fitfully as the darkened world, wrapped in its mantle of velvety gloom, falls asleep in the arms of night. Then, like the campfires of a celestial army at bivouac on the heavenly slopes rested from the fleeing day, myriad stars shine softly. They deepen in lustre as the eye travels eastward until an impalpable lace-work of miniature moonbeams shine upon the land, idealizing the stretch of silvery highway, casting phantom-like shadows on the wayside pools and tipping the restless surf with endless strings of vanishing pearls. For an hour after dark I move silently along the star-lit beach, anon turning inward to round a small lagoon driven like a silver wedge into the yielding sand. Then the lights of Kariya wink faintly ahead, and soon I am dodging the rickshas and people swarming through the lantern-lighted streets as I make my way to the Sumpu Inn.

At this season the Oigawa presents the appearance of a pigmy stretched in the bed of a giant, for while not 200 feet in width, during its flood time it has carved a sandy bed a good two furlongs on each side of the sluiceway proper. Where the water is, however, it is swift and fairly deep, too swift indeed for a direct row across, so the boatman leads me a hundred yards or so up stream to where a rickety, junk-like scow tugs viciously at its mooring, the fierce current bubbling and swirling about its sides. All the country folk in sight are requisitioned before I succeed in steaming safely to the dock of this ferry boat. Then, after the machine is blocked, the skipper slips the rope from a tent peg driven into the sand, flops onto the craft and with a swish and a half turn we dance down stream at a four-knot gait. It requires dextrous handling to keep a hermaphrodite junk's nose straight to mid-stream with a strong current beating a fierce tattoo against its generous poop, but with some mutilated exclamation points and

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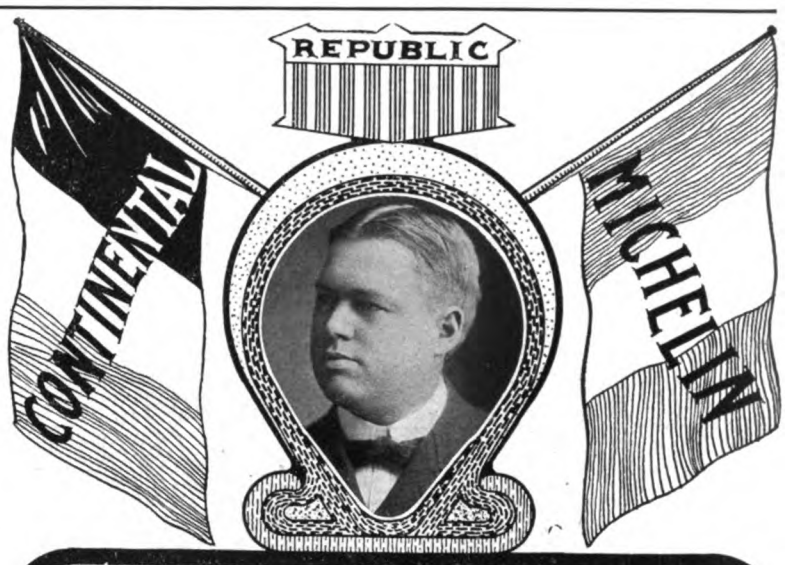
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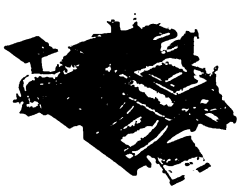
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a three-eighths rope thrown to a confederate on shore we bring up some seventy yards below the landing. Not, however, before the man with the rope has dug up a hundred feet of beach with his vainly planted heels, covered as many more by a series of extraordinary leaps, been jerked to his knees, then to his face, bumped over a dozen small dunes and finally wound about a post evidently planted for similar emergencies. The Japs have no lack of grit, for when this one has ejected the sand from his mouth he grins affably, and I notice a number of small pebbles buried in the palm of the hand with which he bowingly accepts his well-earned reward.

From village to village the prospect changes. The general scenery remains the same—ever the calm blue Pacific and the equally blue peaks peering shyly above the horizon—but the minor views shift constantly and follow one another in picturesque procession. In one little hamlet, along the seashore street full three score rusty junks—symbols of the villagers' occupation—lie awkwardly at rest. Three score hempen ropes stretch calmly across the road, knot themselves around a post before their respective homes and mutely command me to bump the machine across their snaky lengths. The masters of these neglected craft "are off to the war fighting against Muscovite aggression," so the townswomen tell me, and as they speak of their absent loved ones they smile bravely with that fortitude so characteristic of this wonderful people. Strings of drying squid and tai hang listlessly in the open, while myriad starfish, their dried and twisted tentacles turned piteously toward the sun, lie in endless piles along the street or pend garlic-like from the cottage eaves. Bamboo baskets of airing tea; acres of nets spread out to dry; handkerchief boxes coated with colored straw; these and an endless list of articles in the process of manufacture encumber the roads, which in these towns are common property. I soon find it easier to go around these places than to be constantly dodging the ropes and nets and curios below, and the flags, lanterns and fish tails above.

To any brother motorist blessed with a shad-roe appetite and tricked with a stewed-clam income I unequivocally recommend the daily menu of these fishing villages. It consists of fish and tea, then tea and fish. Afterwards fish without tea and tea without fish. Then together again for a change. Then tea made with water smelling rankly of fish. Then fish placed in the sun to dry with the tea. Fish raw, fried, baked, and stewed; fish in such a multitude of forms that it recalls the Norwegian coast, and you finally gag at the sight of a fish and frenziedly desire to pull up by the roots every tea bush flaunting its leaves as you travel the highways.

On its fishy side the Japanese menu includes every swimming creature from whale to white-bait. It is simply suicidal for a barnacle or a teredo to venture within reach of these ruthless despoilers of sea-life. In all this range of fish there is, after the modest and retiring clam, a delicacy of which the Japanese are inordinately fond, namely: devil fish. What sharks' fins and birds' nests are to the heathen Chinee; what terrapin and canvas-backs are in our own enlightened land, is the white-fleshed octopus to the gourmand Nipponese. No sweeter incense over rose to a Tycoon's nose than that which escapes from a pot of seething octopii with their fountain-pens removed. In every seacoast village the vender of this stew takes the place of our peanut and tamale man. With a touching commiseration the inn-keeper invariably asks if I am ill when the succulent devil fish is refused, and many of them no doubt wonder why I preferred to draw the tenuous and crackling line at squid!

At Nagoya I come unexpectedly upon the source of those wonderful bicycles which a few years ago were reported to be crossing the Pacific in ship loads to draw forever a Stygian eclipse over the American machines. The restricted, shop-lined streets of this place literally swarm with them. Some soldiers are practicing with them on the barrack grounds, and I pass a host of youths and maidens zig-

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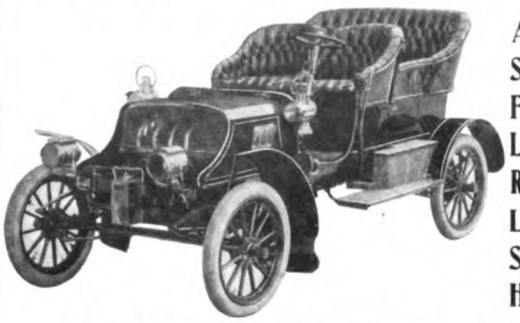
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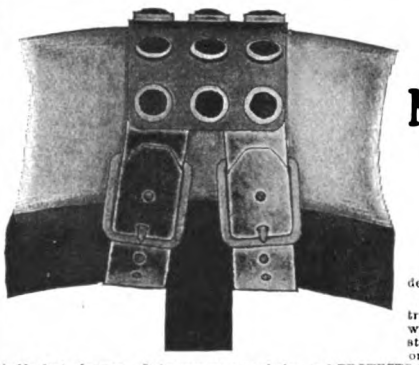
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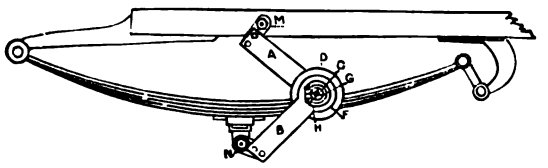
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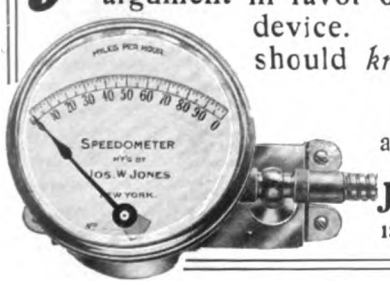
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Interesting Speedometer and Odometer booklet free.

JONES SPEEDOMETER
135 West 32d Street, NEW YORK

½ = 1

Which means that a half-dollar, when buying a LONDON AUTOMOBILE TOP, is equal to one dollar when buying any other top. The LONDON TOP for $45 is better than the other one you can buy for $100.00.

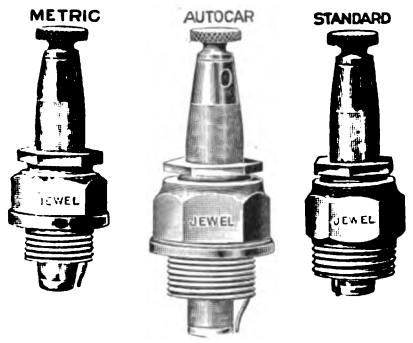
Send for booklet.



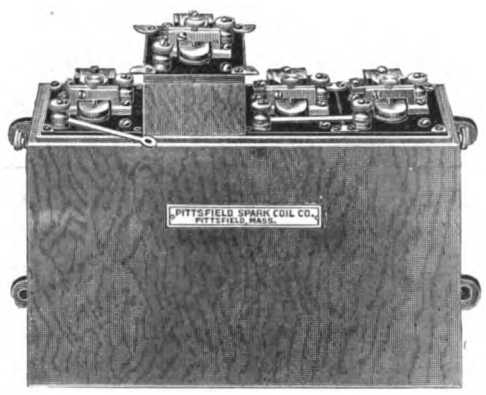
LONDON AUTO TOP CO.
1771 B'way, NEW YORK.

Tops. Dust Shields. Slip Covers.

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Jewel Mica Spark Plug



4-Cylinder Dash board Coil open, showing one coil partly removed

MERIT ALONE

has made our

COILS

popular

No lucky chance; no trading on an old name; no cut price methods; nor any unimportant cause has made our Coils the favorites with experienced buyers. ***Merit*** and ***Merit*** alone is the only reason, and it's about as safe a guarantee of satisfaction a manufacturer can give the trade and public.

Many of the best manufacturers in America are using our goods exclusively and our customers of last year are the first to buy our 1905 Coils, showing that the test of time has proven the advantages of our product.

What we have said about our Coils also applies to our Plugs. If you want a really meritorious article you can secure it in the 1905

JEWEL MICA SPARK PLUG

We have one of the largest and finest equipped factories in this country for the manufacture of ignition specialties.

Write for Booklet

Pittsfield Spark Coil Co.
Pittsfield, Mass.

IN THE CHRISTMAS GIFT CONVEY THE KEENEST PLEASURE

6 cans Gre-Solvent, for Grimy Hands, at 25c	$1.50
4 "Utility" Spark Plugs, Mica; genuine platinum contacts, at $1.50	6.00
2 Squeal Skins, tire-bands. Outwear two of any other make. Pliable —"Fit like a glove, at $1.50	3.00
10 ft. "Utility" Electrical Cable, for secondary wiring, a triumph of insulation	300
6 "Utility" Raw Silk Wipers, unequalled for cleaning machinery, at 25c	1.50
1 "Utility" Hand Flash Light, very convenient; not the cheap kind	1.50
Net retail price	$16.50

The above outfit sent prepaid to any address east of the Rocky Mountains on receipt of $15.00. This is our Special Holiday Offer, closing December 24th. Money cheerfully refunded if not absolutely satisfactory. Each article highly useful to Autoists using jump-spark ignition and pneumatic tires. State make of car.

If desired we will express direct to your friend at the proper time, enclosing your card. We repeat that you cannot send a Christmas gift giving keener pleasure or more lasting satisfaction.

THE UTILITY COMPANY

Manufacturers and Sole Agents
231-235 Greenwich St., (Cor. Barclay St.) New York City
Correspondence Solicited

MOTOR For the Reader—Interesting
For the Advertiser—Profitable

zagging along the beflagged and pebbly streets. My unlooked-for appearance is the signal for a friendly demonstration difficult to restrain. Unable to abide the rattling pace I develop to rid myself of their increasing familiarity, my would-be friends desert their staggering mounts and swoop after me until I present such a picture as would an escaped steer in a careering sprint down Broadway with sparrow cops, messenger boys, citizens, and trolley cars in the wild orgie of a noisy pursuit. The clatter and slapping of the swiftly flying sandals and the excited yelling of the youngsters bring to their doors the housewives and shopmen of the district through which we pass. I soon find it no easy thing to escape the steel-trussed progeny of ricksha pulling fathers and as a score of the young varlets spurt ahead and make my breakneck speed too risky to maintain, I rebelliously slow down and with forty or more boys clinging to the machine I force my way to the distant inn.

It may not be amiss to mention that there is as much difference between a Nagoya and an American bicycle as exists between a hair trunk and a satin jewel case. The accepted model of the former is the Mexican cartwheel type. The front wheel is made of three rough slabs of native pine, each twelve inches wide and one inch thick, nailed together, cut round and reinforced at the centre by cross pieces pegged to the original body. Progressive sections of clap-boarding follow the circumference of the wheel to form a quadruple thickness, in lieu of a tire. Like the human model the backbone is sectional. It is made of poorly articulated pine vertebra, about six inches long, nailed to a central sapling, with the triangular corners sawed off where they have refused to familiarize themselves with the required curvature. The rear wheel is smaller than the front, and it bears an astonishing likeness to those employed by Southern fathers when making soapbox wagons for the boys to bring walnuts home. As usage has accustomed the Japanese to sit contented for hours on the narrow surface of a pair of naked heels, he does not feel the absence of a saddle, but rides the ragged rail connecting the wheels with a confidence touching in the extreme. Two large spools serve as pedals to this marvellous machine, the remainder of which baffles a lucid description. The finished product is a bulky monster that requires a push boy, and it shrieks its way along in tones excruciating to hear.

Nagoya is a flourishing commercial city, capital of the province of Owari. It is a shrine for tourists who come to the famous castle which for many years was the residence of the great Iyeyasu's son. The immense golden dolphins shining from the topmost point of the five-storied donjon; the marvellous decorations of the princely apartments and the earthquake resisting walls of the great building are very interesting. The widely famed potteries of Seto—six ri distant over a passable road—will prove of interest to visitors. As will also the neighboring district of Nara, one of the uncorrupted beauty spots in the heart of Old Japan.


ONLY A DOG

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IMPORTERS' AUTOMOBILE SALON

HERALD SQUARE
EXHIBITION HALL
New York City



FROM JANUARY 11th
UNTIL JANUARY 24th
Admission 50¢
Mondays $1.00

Panhard Renault
Mercedes
Smith & Mabley, Inc.
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Clement-Bayard
Sidney B. Bowman Co.
50-52 West 43d St., New York

F. I. A. T.
Hollander & Tangeman
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Decauville
Standard Automobile Co.
136 West 38th St., New York

Darracq
F. A. La Roche Co.
652-664 Hudson St. } New York
147 West 38th St. }

Richard-Brasier
E. B. Gallaher
141 West 55th St., New York

Rochet-Schneider Auto Import Company 1786 Broadway New York



KNOX WATERLESS GASOLINE CAR

IS as delightful a combination of Luxury and Comfort and Simplicity as can be found on wheels. The rich equipment, the delightful roominess, and the ease of operation make the Knox Waterless the Ideal Touring Car.

No water worries—no overheating of cylinders. The Knox patent system of automatic air cooling *does* what others *attempt* to do.

Six styles of Passenger Cars and 6 Styles Commercial Cars. Get Catalogue of Agencies or of us.

Knox Automobile Co.
Springfield, Mass.

Member Association Licensed Automobile Manufacturers
Selling Agencies in all the Principal Cities

PIERCE

WE have been gradually getting to the point where we can construct an American car which will stand for American construction in the same way that the French car stands for French construction. We have accepted the best Continental experience and shaped it to American needs. We believe that our 1905 car is preeminently the car for American use adapted to American roads and the American temperament. We do not think our success is comparative. We consider that it is absolute. We believe there is no reason why we should admit that any car made anywhere is superior to the Pierce.

We have made for 1905 six cars representing three mechanisms.

The first mechanism is the 28-32-H.P., four-cylinder chassis, mounted as follows:

The Great Arrow, side entrance, King of Belgium type Tonneau, $4,000
The Suburban, $5,000
The Landaulet, $5,000
The Opera Coach, $5,000
} Enclosed bodies by Quimby.

The second mechanism is the 24-28-H.P. Chassis four-cylinder, side entrance, King of Belgium type Tonneau, $3,500.

The third mechanism is our well-known single cylinder Stanhope 8-H.P., $1,200.

These six cars express the best that we know in the building of motor cars. They are all gear driven machines.

The unusual success that attended Pierce cars in 1904 convinces us that our solution of the problem of successful motor car building is the right one.

The George N. Pierce Company
BUFFALO, N. Y.

MANUFACTURER OF PIERCE CYCLES

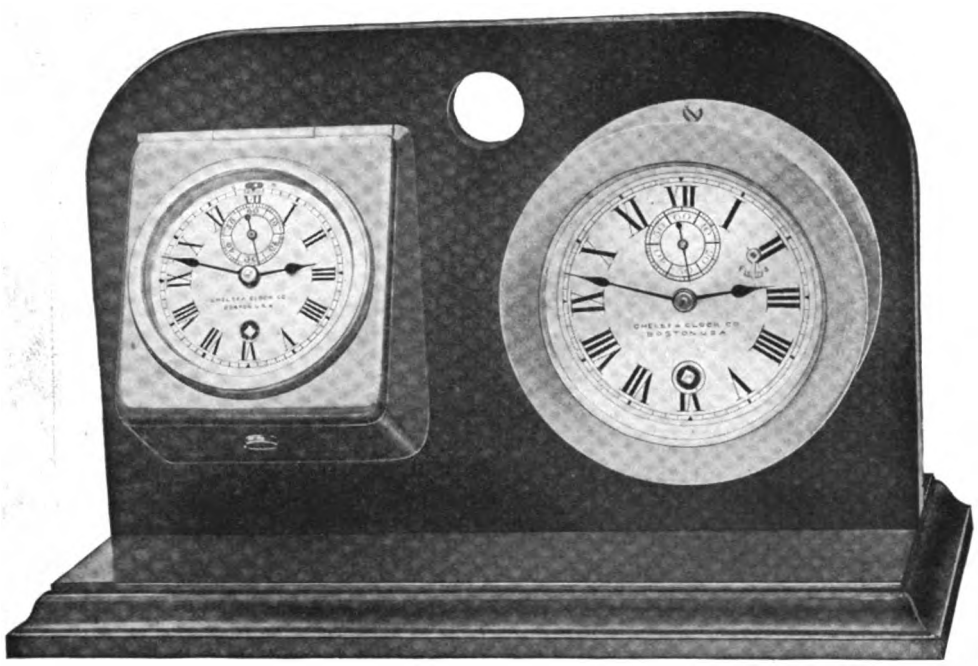
Member of the National Association of Automobile Manufacturers
Member of Association Licensed Automobile Manufacturers

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The "Chelsea" 8-Day, High-Grade

AUTO CLOCK

(Trade Mark)



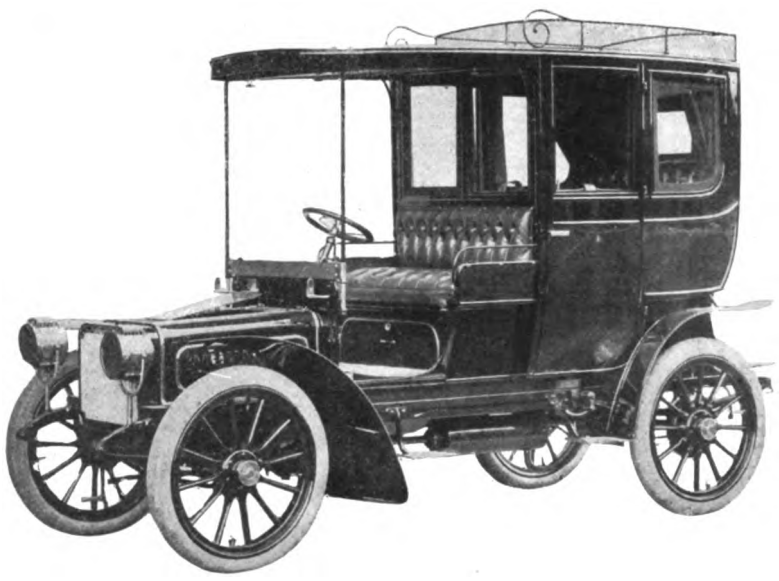
2¾-inch "SPECIAL" BEST in the WORLD Price, $36.00
Has Locked Case. Shows Dial on an Angle.

3½-inch MOTOR Clock For MOTOR BOATS and CARS Price, $24.00

Also, **Two other AUTO CLOCKS**, very high grade and quite similar in appearance to the above illustration of the 3¼-in. Motor Clock, viz: **2¾-inch, $26.00. 3½-inch, $28.00.**
Sizes are the **Diameter of Dials.—Duplex, Brass Cases**, most thoroughly waterproof case on the market.
Our Striking SHIP'S BELL Clocks have for years been the recognized **Standard** for **use** on **Best YACHTS, STEAMSHIPS**, etc., etc., **AND** when **fitted** with **SPECIAL BASE make THE BEST** form of **Striking Clock** for use in **Libraries, Sleeping Rooms**, etc. **Telling** the **Correct Hour** and **Half-Hour** in **Dark Rooms. PRICES, from $42.00 to $125.00**, according to **Size** and **Finish**. Catalogues on application.
Make appropriate CHRISTMAS or WEDDING PRESENTS for you to make to your YACHTING, NAVAL or AUTOMOBILE FRIEND, or to your CLUB, or PRIZES for REGATTAS and RACES.

☞ *ON SALE by Leading Dealers in Best Jewelry, Yachting and Auto Supplies* { ***You want the BEST? ASK for the "CHELSEA" Clock***

CHELSEA CLOCK CO., Dep't T, 16 State Street, BOSTON, U. S. A.
☞ *Largest Makers in America of exclusively 8-day, High-grade Ship's Bell Clocks, Marine Clocks, Auto Clocks, etc.*



Moore and Munger Company

Manufacturers of

Automobile Bodies, Tops, Fenders and all Accessories

We will Furnish Sketches and Estimates on Application

Painting, Repairing and Remodeling of Every Description

Factory and Office, 602-604 WEST 52d STREET

Telephone, 4425 Columbus **NEW YORK**

THE 1905 AMERICAN SHOWS

By Robert Bruce

The thoughts of motorists all over the country are now turning with keen anticipation toward New York City. Enthusiastic friends of the motor car and the new sport it has brought into being, in January will pour into the metropolis from every direction. Almost before we are fully aware, the Fifth Annual Show will be open in Madison Square Garden, while the Importers' Salon will have been under way for several days in Herald Square Hall.

"Why do they come?" query the unknowing ones. "We can see the enjoyment of a horse or dog show, but why all this fuss over inanimate bits of machinery; they all look alike to us." Ah, yes, foolish ones; you revel in your ignorance and indulge in much talk, nor know your own loss. Why do they come? Spend an afternoon during the week of January 14-21 in Madison Square Garden with observant eyes, and mind sensitive to the feeling there represented, and you'll return home with a fuller understanding of, a broader interest in, and a greater reverence for those "inanimate" machines. But have a care, Sir Scornful, for your old opinions—in fact, you are well-nigh convinced now.

The spirit of the Automobile Show will be found to be very different from that of the Horse or Dog Show. It is comparatively easy to gather together enough superficial knowledge to make a good appearance when the subject is "livestock." So a great many people come with an air of wide wisdom and intimate knowledge alike of jockeys, race horses, and kennels.

It is a splendid thing for the trade that woman has taken so kindly to the motor car; she knows "what is best for the world is best for her," and her keen interest naturally carries the masculine element perforce to her way of thinking. Not that it is necessary to prove to mankind in general the worth of the self-propelled vehicle—yet here and there will be found stubborn souls who will not be convinced, and for them the Show teaches a lesson to which they will do well to apply themselves.

It is often erroneously thought that the prime factor of the Show is its commercial profit. From all parts of this country and abroad come those wishing to advance the motor car to its fullest measure of utility. With friendly attitude toward men and machines alike, they assemble at the Show. It must naturally follow that a spirit of co-operation is cultivated whether or no these various manufacturers, agents, owners, or users intend it to be directly so. Well-nigh impossible would it be for this social spirit to exist without some visible increase in the business aspects of the case. From these "professional" people, bits of data are passed out to the "laymen," if you will. Soon the man who can scarcely afford an auto cap and the woman with the bargain sale dust-coat, will be found conversing learnedly about the sparking plug, the honey-comb radiator, or the different kinds of carbureters. Given only the financial ability, and the thoughts of all classes turn toward owning the visible means for this mode of travel.

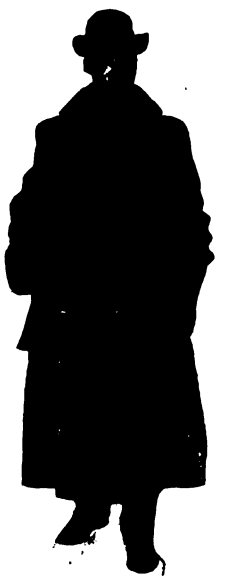
Since it is human nature to follow an established precedent, in nine cases out of ten the man who is thinking of buying a motor car will follow in the footsteps of some friend in his choice. Therefore, the alert agent will aim to impress upon those with whom he comes in contact that people who wait until spring to place their order are running risks of losing much pleasure during the days between now and the summer of 1905. It is probably one of the objects of the show to prove the efficiency of the motor car as an all-year adjunct to business or enjoyment. That winter motoring *is* feasible, it is not necessary to state—"he who runs may read."

The spirit of the show is seen to be that of progress. The aim is the advancement of all sides of the question and broadening of ideas; widening of the horizon and enlarging the scope and the general betterment of all.

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Fur Automobile Coats



Since the very advent of the motor car we have made a specialty of everything for the autoist but the auto—everything to insure convenience and comfort. In numbers and character, we maintain the most comprehensive and distinctive collection of automobile garments of fur, cloth, leather and rubber, which this or any other country affords.

No. 5201.

Long Fur Coat for Women.

SO that you may be impressed with the general character of the garment itself, we have elected to illustrate the coat of a fur which is far from costly, yet rich and serviceable—squirrel skin in white and grey, cleverly matched, with collar and cuffs of grey squirrel. Conscious that no one fur can satisfy all tastes, we also present this model of various long and short nap furs, all of which are of the better grade. You may have this single-breasted model in three-quarter or full length, with storm collar and cuffs of contrasting fur. There are two pockets. Sizes 36 to 44

a. Of Squirrel Fur, lined with plaid cloth, collar and cuffs of Grey Squirrel Fur. Length 50 to 54 inches $85.00

b. Of Hair Seal Fur, lined with plaid cloth.
Length 40 to 42 inches $70.00
Length 50 to 54 inches $85.00

c. Of Russian Pony Fur, lined with plaid cloth, with collar and Cuffs of Sable Dyed Australian Opossum Fur.
Length 40 to 42 inches $85.00
Length 50 to 54 inches $110.00

d. Of Wild Cat Fur, lined with Squirrel Fur, collar and cuffs of Sable Dyed Squirrel Fur. Length 50 to 54 inches $90.00

No. 902.

Long Fur Coat for Men.

IT would be a relatively easy matter to follow the line of least resistance by accepting for our collection the fur garments which the market affords; but that would not give you the advantage of our practical knowledge, relative to the designing of automobile apparel which is incorporated in this model. The entire front of the garment is in the form of a shield which buttons on the extreme left, affording perfect protection from the wind and cold. The deep collar and cuffs also serve this purpose. There are three pockets, one on each side and one on the right breast. Length 50 to 54 inches, in sizes 38 to 44.

a. Of Russian Calf Fur, lined with plaid flannel or sateen . $45.00

b. Of Muskrat Fur, lined with plaid flannel or sateen . . $85.00

c. Of Coonskin Fur, lined with plaid flannel or sateen . . $90.00

d. Of Nutria Fur, excellent grade, lined with plaid flannel or sateen $135.00

Saks & Company

We have issued a 273 page illustrated catalogue devoted to automobile apparel and requisites. Please send for it.

Broadway, 33d to 34th Street
NEW YORK

Highest Grade of

Fur and Leather Garments

for Automobilists



We carry the largest stock of everything you may require in Fur and Leather Apparel

Garments Made to Order

SPECIALTY:
Complete Outfits for Ladies and Gentlemen

Chauffeurs' Outfits

Fur Coats from $12.50



Full Leather Outfits of best Scandinavian Leather $25.00

Scandinavian Fur & Leather Co.

16 West 33d Street, New York
Opposite the Waldorf.

Only Store of its kind in America

Stern Brothers

Men's Automobile Apparel

And Essentials

New and distinct styles of Garments in French and Scandinavian leather, cloth, rubber and fur.

Chauffeurs' Rainproof Suits in exclusive models eliminating objectionable features of regulation uniforms.

Garments of Silk, Linen, Khaki and Waterproof Burberry.

Goggles, Vests, Cravenette, Leather and Fur Hats and Caps. Gloves. Storm Boots and Shoes. Rubber and Leather Blankets, etc.

West Twenty-Third Street, New York

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THE ORIGINAL AND GUARANTEED

The Neverout

TRADE MARK.

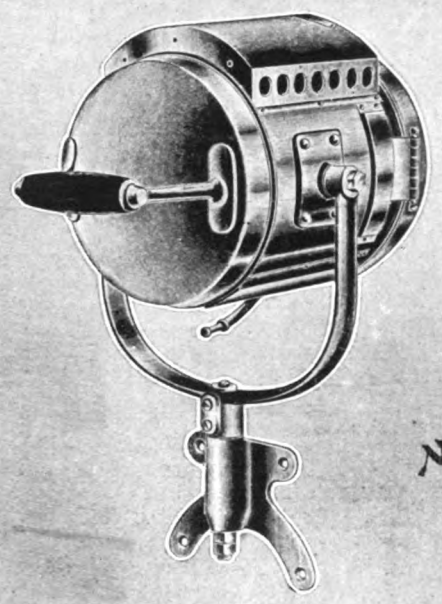
PATENT MOTOR LAMPS

STAND PRE-EMINENTLY SUPERIOR.

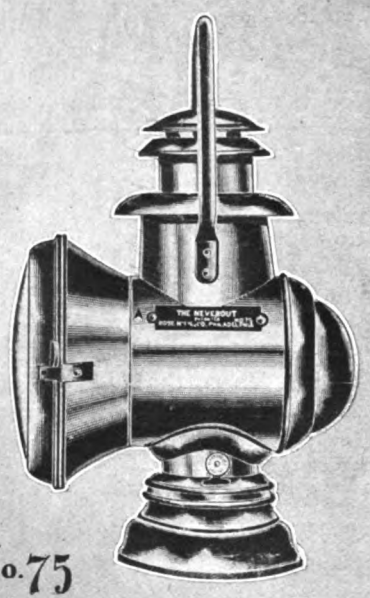
MIRROR LENS SEARCH LIGHT PROJECTOR

WITH SWIVEL SWINGING BRACKET

BURNS ACETYLENE GAS



No. 66



No. 75

MIRROR REFLECTOR OIL SIDE LAMP

BURNS KEROSENE.

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PATENT MOTOR LAMPS

are the only lamps guaranteed to positively stay lit or money refunded. *Catalogue mailed free.*

ROSE MANUFACTURING CO.

914 ARCH STREET, PHILADELPHIA, PA.

The Growing Speed of Motor Boats

(*Continued from page 27.*)

50 sec. for 136.6 miles, without a single stop, smashes all motor boat long-distance records on both sides of the Atlantic.

In this race, which was from the Columbia Yacht Club, foot of West Eighty-sixth Street, to a mark near the Poughkeepsie Bridge, a distance of 59.3 knots or 68.3 miles and return, the *Xpdnc* made the up-river journey in 2 hrs. 30 min. 50 sec., an average of 23.62 nautical or 27.17 statute miles an hour. Down the river, the Croker craft averaged 22.12 knots or 25.45 statute miles per hour, or 5 hrs. 11 min. 50 sec. for the whole course, which is 22.86 nautical or 26.29 statute miles per hour.

As for the *Vinght-et-un II*, which lost about 30 minutes filling her gasoline tanks at Highland Falls, she took 6 hrs. 10 min. to cover the course. In spite of her delays, the *Vingt-et-un* averaged 22.15 miles over the course, a really fine performance, but in spite of this was beaten nearly an hour. Incidentally it might be remarked that the hull of the *Xpdnc* was designed by Nat Herreshoff, of Bristol, R. I. She is 44 feet on the water line, 6 feet beam, and has a Mercedes engine of 47.6 horsepower, protected by a turtle-back deck fitted with two tiny funnels for the exhaust.

With boats like the *Onontio, Xpdnc, Vingt-et-un,* and *Standard* to represent America, it would look as though this country could now hold its own afloat with anything in the motor boat line produced by England, France, or Germany, and that next season a boat carrying the Stars and Stripes will probably win the Harmsworth cup abroad.

MOTOR CALENDAR

DECEMBER

MON. 5 to Jan. 15	Exhibition of Heavy Motor Vehicles, Paris, France
FRI. 9 to Dec. 25	Salon, Paris
MON. 26 to Jan. 2	Reliability Trial, Motor Union of Western India
DEC.	Motor Show, Buenos Ayres, Argentine Republic.

JANUARY, 1905

WED. 11 to Jan. 24	Importers' Salon, Herald Sq., New York
SAT. 14 to Jan. 21	N. A. A. M. Show, Madison Square Garden, New York
SAT. 14 to Jan. 26	Salon, Brussels, Belgium
MON. 23 to Jan. 28	Ormond-Daytona Tournament, Florida
MON. 23 to Jan. 28	Motor Show, Philadelphia, Pa.
FRI. 27 to Feb. 4	Automobile Show, Crystal Palace, London, England
JAN. and FEB.	Motor Show, Bombay, India

FEBRUARY

WED. 1 to Feb. 3	Motor-Boat Races, Palm Beach, Florida
MON. 4 to Feb. 11	N. A. A. M. Show, Coliseum, Chicago.
SAT. 4 to Feb. 19	International Motor Show, Berlin, Germany.
SUN. 5 to Feb. 19	Automobile Week, Nice, France
MON. 13 to Feb. 18	Motor Show, Detroit, Mich.
WED. 15	Turin Salon, Italy
TUE. 25 to Mar. 11	National Motor-Boat and Sportsman's Show, Madison Square Garden, New York City
FRI. 24 to Mar. 4	Motor and Cycle Show, Edinburgh, Scotland
MON. 27 to Mar. 11	Motor Show, Cleveland, Ohio
MON. 27 to Mar. 4	Motor Show, Toronto, Canada

MARCH

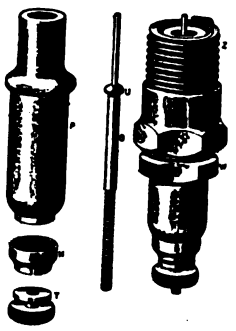
FRI. 3 to Mar. 11	Motor-Cycle Show, Liverpool, England
MON. 13 to Mar. 18	Motor Show, Boston, Mass.
SUN. 5 to Mar. 11	Motor Show, Buffalo
WED. 15 to Apr. 9	Motor Show, Copenhagen, Denmark
SAT. 18 to Mar. 25	Motor Show, Agricultural Hall, London.
MON. 27 to Apr. 5	Motor Show, Washington, D.C.

APRIL

SAT. 1	Light Van Trials of Automobile Club of Great Britain and Ireland, over course of 2,000 miles

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Soot-Proof



The Soot-Proof is the one spark plug that perfectly insulates the sparking points from each other in spite of any carbon deposit that can possibly form. It will not short circuit.

It never allows oil to remain fixed across the gap.

It is gas-leak-proof and nearer heat- and wear-proof than any other plug made, and is *guaranteed to give satisfaction* where all others fail.

Simple, interchangeable parts. All sizes.

Beware of Worthless Imitations
Infringers will be Prosecuted

Price, $2.00, postpaid

C. A. MEZGER, M. E., 203 W. 80th ST., NEW YORK
"The Spark Always Jumps"

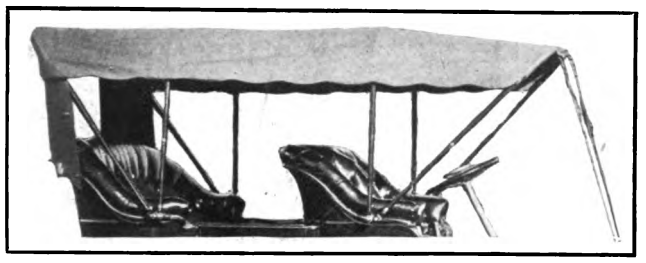
MOTOR BOOK

will tell you where to go and how to get there. A complete set of touring routes around New York; a list of 9,000 automobile owners; automobile and motor cycle records; automobile laws.

Price, $2.00

MOTOR, 1789 Broadway, New York

Springfield-Top
(Patents Pending)
Aluminum Bodies



Aluminum Fenders etc.

3, 4 and 5 Bow Tops and Attachments for all Cars

SPRINGFIELD METAL-BODY CO.
Box 71 **Springfield, Mass.**

HOOVER BALL COMPANY AVALON NEWARK OHIO

A GUARANTEE OF QUALITY.

WANTED!

The name and address of every dealer in Automobile Supplies in the U. S. So we can send them our 1905 Automatic supply catalogue. It is very complete.

It will be of interest to every owner as well as dealer in Automobiles and supplies. We have a new Auto rain apron that we will tell you about later. Watch for our December announcement. WRITE TO-DAY.

Hoover-Ball Company
Manufacturers and Jobbers
NEWARK, OHIO



THE *display* of an advertisement is a *very important* element; probably our imprint in company with your design would greatly enhance the value of your space—we think it would at any rate.

Publicity Press
150 Nassau Street, New York



The DAVIS **"AIR-TIGHT BAG"**
LAP ROBE

Is to the occupants of the automobile or carriage what the furnace is to the house, for it is absolutely

COLD, WIND AND WATERPROOF

Guaranteed to keep you warm and dry in any weather all day long. It is made of the finest heavy plush and rubber, leather shod. Adjustable to fit anybody and **stays** in place until you stand, when it **FALLS AT YOUR FEET.**

Price, $10. **"Baby Bear" Fur, $20**

SENT TO RESPONSIBLE PEOPLE FOR EXAMINATION AND TRIAL.

This robe bifurcated makes an ideal overgarment for the "man at the wheel," and is called the **"DAVIS ARCTIC OVERPANTS."** Send height. **Price, $10; Fur, $20.**

WRITE FOR PAMPHLET. OUR GREAT SECRET—Keep the warmth of the body *in* and *exclude* the cold from outside.

THE DAVIS ROBE CO., Inc.
Patent Pending **1312 CHAMPLAIN BUILDING, CHICAGO.**

WEBB SPEED INDICATOR
"JUST HOW FAST"



2 MILES to 150 MILES

ACCURATE

RELIABLE

HANDSOME and ARTISTIC IN DESIGN

No car complete without it.

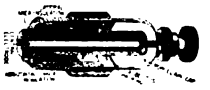
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THE WEBB COMPANY
477 Park Row Bldg. New York City.

Everything for the Automobile

Cravenette Coat,



$37.50, Squirrel Lined.



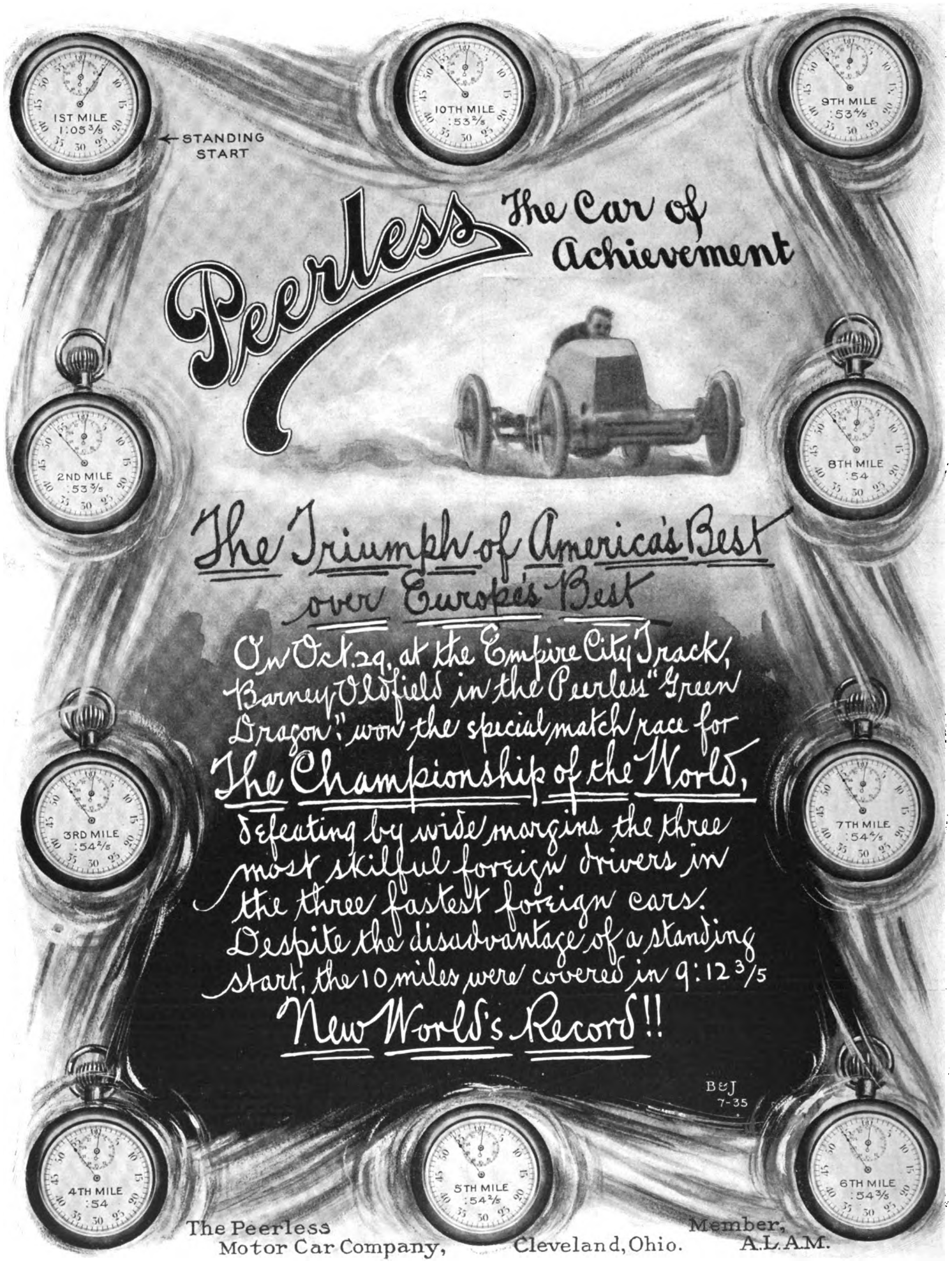
"Duke of York" Broadcloth Auto Coat, Price, $27.50
Muskrat collar and edged, Silk seal plush lined, equal to our $350.00 in appearance, Warm enough for the coldest weather.

Chauffeurs Fur Coat	"	17.50
Black Manchurian Dog Fur Coat	"	22.50
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For the Coming Season

and be Satisfied

More up-to-date ideas. Better detail in construction. More Style, Better Equipment.

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CLEVELAND, O.

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GOODRICH TIRES

FOR 1904

Constitute the most noteworthy tire occurrence of the season. Time after time in the longest, hardest and fastest trips, have they gone through without mishap, helping to make a speed record here and a happy long-distance automobile tourist there.

Never disappointing, never hindering—just go where you please, Goodrich Tires will take you through.

Pleasant remembrances of 1904.

The best tire investment for 1905.

The B. F. Goodrich Company

Akron, Ohio

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BUFFALO, 9 W. Huron St.
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BOSTON, 157 Summer St.
DETROIT, 80 E. Congress St.
LONDON, E. C., 7 Snow Hill.
CHICAGO, 141 Lake St.
PHILADELPHIA, 909 Arch St.
DENVER, 1444 Curtis St.



Auto-Talks

No. 3

In taking up the subject of performance in this "Auto-talk" we realize that our space is too limited to permit of thoroughly covering the subject. First, however, we will say that it is not our intention to offer as sole evidence of Autocar efficiency professional "records" or exhibition trials.

While the Autocar can show its share of these records, we believe that the average prospective purchaser is more interested in knowing the day-in-and-day-out behavior of the cars than in statements that they carried off such and such honors in such and such a contest. Following we print one of the many letters received from satisfied Autocar owners, because it tells of what was simply a private test of the car and in many respects an every-day trial:

WORCESTER, MASS., Sept. 24, 1904.

THE AUTOCAR COMPANY:

It may be of interest to you to know that I have just returned from a trip to Burlington, Vt., in an Autocar runabout, making the run up in fourteen hours and twenty minutes, the distance being 236 miles over rough hilly country. In view of the fact that I had only *oil side lights* and four hours of the run was after dark, it will be seen that the time was pretty fair. Over the mountain was the worst of the going, of course, but I seldom had to resort to the low gear, and then only for the *very steepest* pitches. The car is a wonder and my companion got an eye opener in dead earnest.

The car gave absolutely no trouble except one tire which I replaced at Rutland, as the tube was pinched.

The way it slid up those mountain roads was a caution to the natives.

Yours truly, H. E. SHILAND.

While we make no claims for the Autocar as a purely racing machine, its maximum speed of 35 miles an hour is, however, high enough so that the Autocar driver can feel he has a car able to "eat up the road" if necessary.

The points which we do emphasize in Autocar performances are these: Reliability under all conditions of roads and weather; ability to negotiate any traveled grade; extreme ease and simplicity of control, including brakes sufficiently powerful to stop the car in the minimum distance; simplicity and perfection of mechanism with consequent freedom from derangement; easy accessibility of all parts, and absence of vibration.

The Autocar has a speed range of from 3 to 35 miles an hour, and will travel 175 miles with one filling of the 10-gallon gasoline tank.

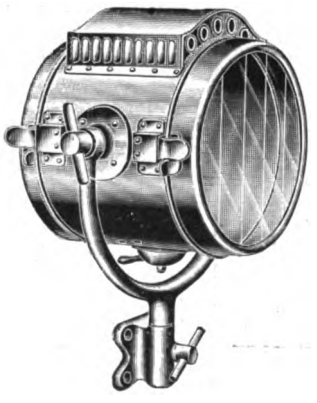
To give you a more practical idea of Autocar performance we will say that our dealers all over the country have cars for demonstrating to any intending automobile purchaser. Our booklet, which we will be glad to send you, gives full details of Autocar construction and name of our dealer nearest you.

THE AUTOCAR COMPANY, Ardmore, Pa.

Member Association Licensed Automobile Manufacturers.

DIETZ

MIRROR LENS SEARCHLIGHTS



WE offer a new design with many attractive features. The back of the lamp is hinged so as to provide ready access to the reflector. All fitted with best quality mirror lenses properly shaped and focused to give the best results in use on automobiles.

We are prepared to furnish handsome and strong brass brackets (both shifting and stationary) for these lamps.

They are made in three sizes, 6 in., 7 in., and 8 in.

The illustration shows 8-in. size on a shifting bracket.

We have made a number of important improvements to our oil lamps which will increase their desirability.

They are unquestionably the

Handsomest, Strongest, Best Burning Oil Lamps on the Market

See Our 1905 Line Before Placing Your Order

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"STAYS RIGHT THE LONGEST."

How would *you* like to go

10% FASTER?

It makes all the difference in the world whether you have the right length plug or not. We have 6 lengths in our ½", 21 sizes in all. $1.25 to $4.00. Be sure your plugs extend *in* far enough, and do it right away. Plugs stay right the longest which have "Sta-Rite" on the shell.

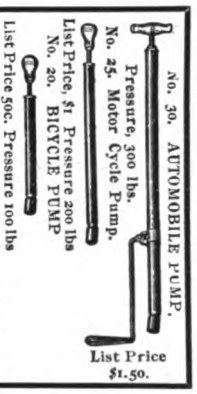
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225 W. Broadway, New York City
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THE PATENT AUSTIN PUMP

In placing this pump on the market we believe we have the best air pump ever offered. It does away with all screw-thread attachments and rubber hose, thereby giving a direct passage of air from pump to valve and so preventing loss of air. It fills an ordinary tire quickly, and easily attains a higher pressure than any other pump. It will fit any valve; is simple in construction and use.

These good points are obtained from the use of a **Patented Flexible Rubber Coupling** in the **bent** end of the pump, which makes a perfectly air-tight connection with any tire valve.

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Non-Skidding Tire Covers

Applied to Tires of Every Description

We also re-cover Michelin, Continental, and all other makes of Outer Casings or Shoes.

All inner tubes are repaired by our own patent Self-Vulcanizing Cement.

Prices quoted on application.

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One door West of Eighth Avenue



AUTOMOBILE PUMPS

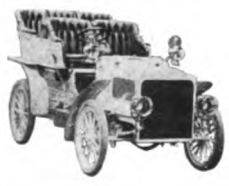
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A Motor Car which is built to stand the wear and tear of touring . . . . .

American Darracq Automobile Co.
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THE INCOMPARABLE WHITE STEAM TOURING CAR

HENRY J. ULLMANN
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"Graphite for the Motor."

A Lubrication Booklet for Automobilists.

Send for your Copy to-day

JOSEPH DIXON CRUCIBLE CO.
JERSEY CITY, N. J.

The Wonderful Monster

(*Continued from page 37.*)

and as she went on her utterances became more rapid, and the fire that at first had smothered in her eyes burst into flame.

"I get up," she continued, "I seat myself on his back, and my hand throbs to his beating artries. Then perhaps I turn my hand and press a lever—it is supposed that one does—but, really, I just signal to him as one signals to one's horse, and he draws one sigh of gratitude; his desire is attained; his heart pants and anguishes no more, for he moves. Faster and faster he moves, and the still air drives like a hurricane against us. The riband of empty white road in front seems torn in two before us as a shopman tears his stuff. The hedgerows are no more than blurred lines, and the great savage strength of my wonderful monster superbly exults as it hurls along. Then perhaps we pass through a soft summer shower, or as yesterday, through a little fall of snow, which really eddies lazily down through the windless air. But the life of my wonderful monster infects all its comes near; the rain is dashed in my face, the snow whirls by in maddened dance of flying flakes. A mile ahead is a corner, death, for all I know, lies beyond it, and I laugh to think of it. My wonderful monster laughs, too, a great raucous laugh, for, though he does not want to die, yet when his time comes, that is the death he wants, a blinding, deafening crash, a spurt of broken iron limbs, a leap into the air, and after that nothing, nothing. Danger he loves, because in danger there lurks the death he desires. No rotting and rusting away, no gradual dissolution and decay, but death at top speed, top speed death on the level.

"The sun sets as it set to-day in a pale green frosty sky, and one great star hung in the west. Thirty miles away we stopped for a moment on the huge flatness of Salisbury Plain, close by Stonehenge, and there by the earliest monument of human hands, I told the last and most wonderful creation of human hands that it was night, and that he must look how he went, and must lend me the light of his eyes to see the road. And on the word his eyes flared up—what the chauffeur was meddling about I don't know—and through the gathering dusk we stormed on. Not a living soul was in sight; the laborers were back in their cottages; I and my wonderful monster were alone in the night. Once we met another flaring westward, and the two great beasts gave a welcoming hoot as they passed. But on we went, devouring the miles without check or weariness—devouring them like some strengthening food, till we saw the lights of home on the horizon, and the next moment, so it seemed, had arrived!

"It is true, all that I am telling you. I have not conjured these things up in my imagination till I half-believed them, but the belief has been forced on me. Every day my monster grows a little more alive, for at present, as I have told you, his life is intermittent—it depends on human presence and contact. But some day he will get a life of his own wholly independent. And then, my poor Wilfred, you will have seen the last of me, for he will certainly ask me to elope with him, and I shall certainly say 'yes.'"

Her eyes dropped, and she looked at Muriel again. "That is what you miss," she said. "And even I feel that I have talked enough nonsense for the present."

"A motor-car as co-respondent in the divorce court," said Gerald. "The co-respondent was very nervous, and by order of the judge, was accommodated with one of his own seats."

Lady Beeston took no notice of this, and leaned with her arm on the back of her husband's chair.

"Dear Wilfred," she said, "when that day comes, remember that I warned you long ago. I may be vicious, but I am not furtive."

"I shall cut the motor-car's throat at once," said he, "and there will be an end of that. Where does it keep its throat, Dot? In its tires?"

The party dispersed to their rooms after this to dress for dinner; Lady Beeston, however,

TOBEY POLISH

FOR AUTOMOBILES

PRESERVES THE FINISH AND GIVES SUPERB LUSTRE TO SURFACE

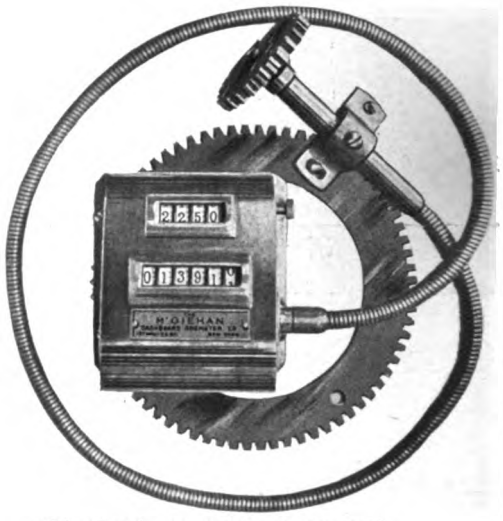
GALLON JUG, $2.00
12-Oz. TRIAL BOTTLES, 75c.

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and Mile Recorder



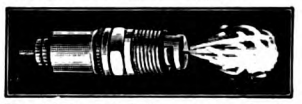
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Trip registers 1,000 miles (reset at will).
Sum total registers 100,000 miles.

Handsomely finished throughout in solid polished brass.
Suitable for any Automobile.

Attractive literature for the asking.

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137 W. 32d St., New York

1905 "SPIT-FIRE"
the most reliable sparking plug with genuine iridium platinum point.



MOSLER, 1679 Broadway, N. Y.

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Positive Reliable
CIRCUIT BREAKER





Do You Slip or Skid?

THE WEED CHAIN TIRE GRIP

will positively prevent skidding even in snow and on ice and will not injure the tire.

Easily and quickly adjusted. *Send for booklet.*

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Send for Catalogue of Automobiles and Auto-Marine Engines. . . .

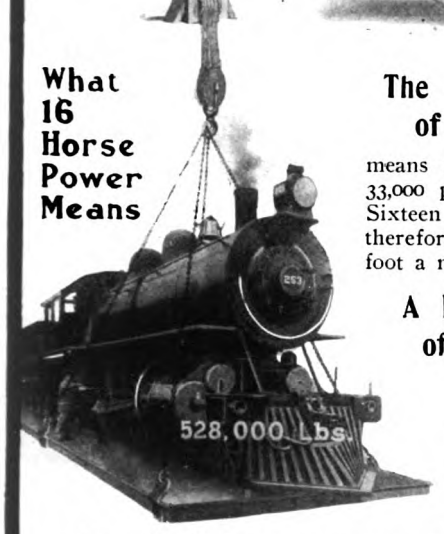
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Touring Car





The Mechanical Definition of One Horse Power

means the power necessary to lift 33,000 pounds one foot per minute. Sixteen actual Horse Power would, therefore, lift 528,000 pounds one foot a minute.

A Practical Demonstration of 16 Actual Horse Power

is given the owner of a Wayne Touring Car every time he climbs a hill, drives through a sandy road or takes a thirty-mile-an-hour run.

The Wayne has a double opposed cylinder motor of 16 actual horse-power. It develops that power without effort or strain and with absolute freedom from vibration or jar.

Price (with double side entrance tonneau) **$1,250** **Price** (with detachable tonneau, rear entrance) **$1,200**

Send for our booklet, which gives detail of design, construction, materials and finish of both our cars. This book is published for the discerning man who appreciates the points which constitute the highest grade of an automobile.

WAYNE AUTOMOBILE CO., Dept. M, DETROIT, MICH

Equalled by Few Excelled by None

No car ever gained such distinction—no car ever gained such success for successful performances on the road as has this noteworthy car.

It's the car you'll obtain the fullest amount of pleasure from, simply because it does the work so well—it starts easily and stops easily. It is easy to control and never fails at critical moments.

We'll furnish particulars on request. We invite prospective purchasers to visit our factory—a rather effective way to demonstrate the

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Agencies allotted to responsible representatives.

THE HAYNES-APPERSON CO.
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DEPOTS:

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NATIONAL



NON-SKID and PUNCTURE-PROOF LEATHERBAND

Vulcanized to your new or old tires.

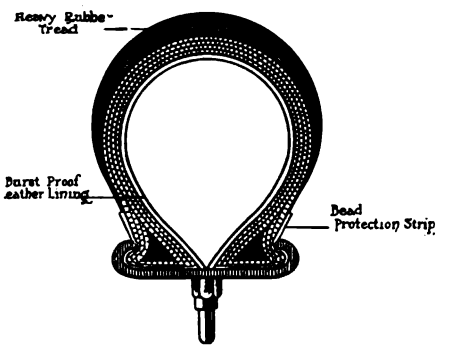
Materials and Workmanship guaranteed.

A Few Advantages of the "National" Band

The "NATIONAL" Bands are brought right round to the beaded edge of the tires, preventing the edge of rim from cutting into the bead.

The "NATIONAL" Bands are made only of the best Chrome Leather, in conjunction with tempered steel studs. Absolutely waterproof and unaffected by weather.

They do not slow the tires, and will outlast three ordinary rubber treads.



A well-organized factory assures you of getting prompt and efficient work.

Send for Price List.

National Rubber Tire Repair Works

72 So. Washington Square, New York City

The Maxwell AUTOMOBILES

"NOTHING TO DO BUT RIDE"

16-H. P. TOURING CAR $1550 **8-H. P. TOURABOUT $700**

THERE is a man who, during twelve years of motor car manufacture in America, has (always behind the scenes and always in close touch with every constructive improvement) worked and watched and waited for the day on which he could put upon the market an automobile bearing his name and of which he could conscientiously say, "In its class, this is the best."

Every year has ripened this man's judgment, every automobile failure and every success has added to his experience until to-day his work has culminated and his ambition been achieved in the completion of a perfect car at a moderate price—"The Maxwell."

To every agent and to every motorist the points of superiority in this automobile should prove of interest.

The Maxwell Cars have no pump (Thermo Siphon). Their double opposed motor is in front under the hood and easily accessible in every part. Bevel gear drive. Transmission case and crank shaft cast in one piece of aluminum. These are but a few of the qualities that are making the "Maxwell' an easy car to sell and a more than satisfactory car to own.

Agencies for 1905 are now being placed.
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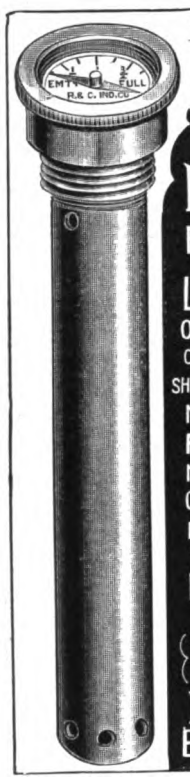
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FOR AUTOMOBILE AND LAUNCH GASOLINE TANKS.
OPERATED UNDER PRESSURE OR WITHOUT PRESSURE.
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A. H. FUNKE, 83 CHAMBERS STREET NEW YORK CITY

BOWSER
Gasoline Storage Outfits
Will save you gasoline, time, labor and money. They are safe, convenient, satisfactory. Fifteen different styles. Ask for Catalog "IX."
S. F. BOWSER & CO., Inc., Fort Wayne, Ind.


THE WORCESTER TOP
With robe-rail and storm front. Patents pending.
H. J. RUSSELL
Worcester, Mass.
"The Top with the Telescope Bow."

lingered a little longer by the fire, and her husband, who had still not outlived the lover's instinct to snatch a solitary moment with her, having shown the men who had arrived that afternoon to their rooms, hurried back, knowing that she was alone. She welcomed him with a charming smile, of which, to do him justice, he was quite worthy, so pleasant a person, physical and mental, had nature given him, and he sat down sideways upon the arm of a chair that stood next her.

"You talked a surprising deal of nonsense this evening, Dot," he said.

"I suppose it was nonsense," said she.

"Rather. How do you think of such things?"

"O, my dear Wilfred," she said, "how does one think about chops and steaks when one is hungry, or about things to drink when one is thirsty? It is instinct merely. One doesn't think of them; simply the images of those things are in one's mind. One opens one's mouth and they are said. Now, about to-morrow. I love making plans. What are we going to do all day?"

"You shall do what you choose all day," he said.

"That is charming of you, but you must help me more than that. You must suggest, invent."

"Well, we shall shoot, and I thought perhaps you would join us at lunch. Or, if you liked, you might skate. I am told the ice bears this afternoon."

She got up from her chair and stood in front of her husband, regarding him critically.

"You look very nice this evening, Wilfred, very prosperous, very secure," she said.

"I feel very happy, anyhow."

"Why?"

"The usual reason. You."

"How delightful of you. And the day after to-morrow is Christmas, is it not? Our day"

"Yes; our day."

"Christmas, Christmas," she repeated. "What a child one is about some things! Why, the very sound of the word is somehow fragrant, like the smell of lavender; it reminds one of dim, childish sensations. It gives me a 'feeling.' Mysterious singing in the night by people one hardly thought of as human. Do you remember that? Good temper all round, presents, holly. Wilfred, do give me a silly little Christmas card with a foreground frosted with bits of glass and a snow-covered church. And if I hang up my stocking, will you put something in it?"

He laughed.

"Yes, you baby," he said. "Now go and dress, or you will keep everybody waiting for dinner."

She did not move at once.

"Do you think my plan is a success?" she asked.

"What plan?"

"Gerald and Muriel. I think he is attracted by her. I very much want them to marry. They are admirably suited to each other; and it is time Gerald settled down. O, I have explained him my views."

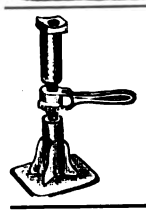
"Was that wise?"

"Probably not. Well, we must go and dress. Dear old Wilfred, you surely know me well enough to know that I am never wise."

Dot's plan, whether wise or not, had a sort of sketchy daring about it which possibly deserved success. For before her marriage, now just eighteen months ago, Gerald had been very seriously taken up with her, and she, so her enemies said, had quite indubitably encouraged him, only to throw him over on the appearance of Wilfred. But in the opinion of others, including herself, who might be supposed to know, she had never intentionally encouraged him at all. She had played about with him when children together, entering, it is true, with matchless enthusiasm into the play, but being all the time quite free from any sentimental imaginings about her playmate. And it was intolerable, so said her friends, that a girl cannot like a man without being supposed to be flirting. Then when her engagement was announced, people more distinguished for candor than amiability, had told her what the world said.


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Latest styles
Manufactured by
JNO. SCHEIDIG & CO.
43 Maiden Lane
NEW YORK CITY
Send for illustrated catalogue and dealers' discount.
All Kinds of Goggles Repaired

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THE WHITNEY MFG CO., HARTFORD CONN.


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Powerful Ratchet Double-Acting Screw Jack
Easy to Operate Quickly Adjusted
No. 501 weighs 7 lbs., will lift 3000 lbs, and adjusts in height from 11 to 17 inches.
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For AUTOMOBILES
Steel Frame, Hand Sewed, Linen Lined, Waterproof, Dustproof. Also Number Pads and Lamp Numbers in accordance with New York Law.
JOHN BOYLE & CO.
112-114 Duane Street, New York City
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253 Jefferson Avenue
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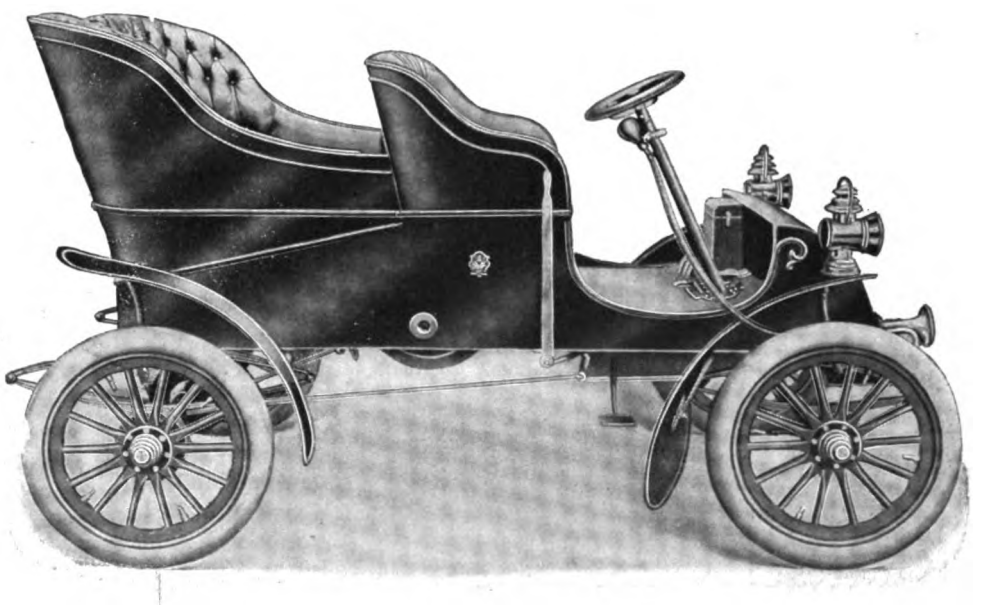

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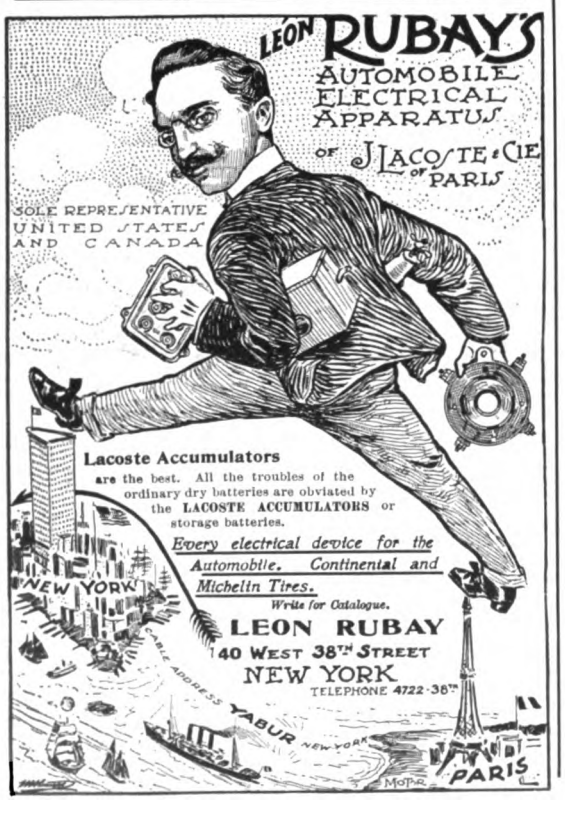
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So now, though she admitted neither to herself nor others that she had been in the least to blame, she was seriously interesting herself in her playmate's future, and had provided him with propinquity to the most charming girl of her acquaintance. Furthermore, to mark her policy more unmistakably, she had asked them both down for Christmas to celebrate the second anniversary of her own engagement.

The rest of the party was constructed without purpose, and consisted simply of a few—Dot never gave large house parties—old friends of both of them, belonging to the rather exclusive set in which they lived. For what we may call her social philosophy of life was nothing if not definite; there was nothing haphazard about it. She had realized at a very early age, at a time in fact when most girls are still experimental, what she liked and whom she liked, and while rating the value of friends extremely high, she put the lowest possible figure on acquaintances. Brilliant and charmingly pretty as she was, it gave her very little pleasure to be the admired figure at some huge London crush, and no pleasure at all to entertain the same sort of crush at her own house. Instead, with a wisdom that seldom belongs to youth, she lived entirely in a small set, not of acquaintances but of friends, and enjoyed her life quite enormously.

The Santa Claus plan which she had mentioned to Wilfred had struck her fancy, and at dinner she enlarged on it to the party generally.

"We are all going to hang our stockings outside our doors on Christmas night," she said, "and every one is obliged to give everybody else some present of no value."

Bertie Farquarharson, who was sitting on her right, turned to her.

"It is an awful task," he said; "we shall have to devote all our time to finding out what we are like. We have got to give seven presents each. I haven't got seven characteristics. Besides, where are we to get the presents?"

"The village emporium supplies everything, from pickles to prayer books," said Dot.

"I know what I shall give you," said Gerald to her from the other side, "and you will never guess where it comes from."

"Gerald, how odious of you," she said, turning to him, "I know it will be something rude."

"Not in the least. Complimentary on the other hand."

"And what will you give Muriel?" she asked in a low tone.

Gerald looked across the table to Muriel, then back again to Dot.

"A verse out of a chapter in the Acts, about Gallio, who cared for none of these things."

Dot frowned: this was the first news she had had about her plan, and it was not very promising.

"That is not spoken with your usual good taste," she said.

"No, the veneer has got scorched in—in a fire," said he.

He paused a moment.

"I beg pardon," he said; "I am talking nonsense."

Dot laughed. She was extremely glad he had recaptured his manners.

"It is all my fault for having talked so much before dinner," she said. "I have infected you. Why, every one seems to have finished!"

She caught Lady Farquaharson's eye and rose. "Don't be long in here, Wilfred," she said, as she passed out. "You can all smoke your horrid cigars in the drawing room, and I haven't played bridge for twenty-four hours. How awful!"

After the women had left the room, Bertie Farquaharson dropped into the chair which Lady Beeston had vacated next to Gerald.

"This game promises to be fatiguing," he said. "What awfully clever people women are. They will all think of their presents in no time. By the way, that was rather an ingenious rhapsody that Lady Beeston gave us before dinner on motor cars. It was so—so genuine, so convincing. What did you make of it?"

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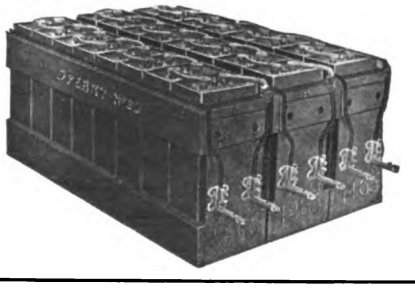


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"I made of it that she was quite devoted to motoring, and had a fine imagination," said Gerald, guardedly.

"Certainly. When you were a child did you ever pretend that there was a man under your bed so vividly that you were terrified?"

Gerald smiled.

"Yes, often. But my terror was never so vivid that I thought I saw the man there."

"It never produced hallucination, you mean?'

Gerald looked at him sharply.

"My dear fellow, what are you driving at?" he asked.

"Well, do you know, while Lady Beeston was rhapsodizing, I for the moment really believed what she said. I thought of the motor car as a 'wonderful monster.' In fact, she produced a mental hallucination in me. How very strong, then, the image must have been in her mind if she could so transfer it to me."

"Her imagination is peculiarly vivid," said Gerald, dryly. "But no amount of imagination, however vivid, will actually make an animal out of a motor car. It will continue to be steel and petroleum and cushions to the end of the chapter. And a tootler remains a tootler, however firmly you call it the 'hoarse laugh of the wonderful monster.'"

"Frankly, then, did not her rhapsody make you a little uncomfortable?" asked Bertie, directly.

"Ah, that is a different affair," said the other. "The knocking in Macbeth makes me uncomfortable, though I know it is only a play. It is true that Dot's rhapsody made me uncomfortable, too."

"Because you believed it, or because she did?" asked Bertie.

"Neither. Because it was convincing rhetoric."

"I suppose spontaneous generation is disproved," he said, "but I was never quite satisfied of it."

Gerald laughed.

"Wilfred," said he, "here's Bertie suggesting that Dot may be right, that a motor car really is a wonderful monster. She will be delighted. She so seldom gets any one to take her nonsense seriously.

Wilfred got up.

"Well, if you've all finished we'll go and take bridge seriously," he said. "Eight of us. How charming. There will be no cutting out—by the way, the ice bears; there will be good skating to-morrow if the frost holds. Let us look out."

Bertie Farquaharson followed him to the hall door, while the two others passed direct into the drawing room. Outside the night was starry and still, but moonless and very dark and bitingly cold. There was no question of the frost not holding, and they were turning after one glance and one shiver to go in again, when suddenly they heard the throbbing of some rapidly approaching motor from down the drive. Next moment it had turned the corner some quarter of a mile off, and they saw its two lamps coming nearer with furious speed. They had only just stepped back out of the road into the porch again when, with a hoarse crescendo yell, it had passed the door, and whirled out of sight toward the stables. They stood there in silence a moment.

"That looked like Dot's motor," said Wilfred. "I suppose they have had to send down to the village for something. Rather reckless driving. Did you"—— and he broke off.

"You were going to say, 'Did you see who drove it?'" said Bertie, in a voice of suppressed excitement.

"I was. I could see nobody. But it is very dark, and no doubt the lamps dazzled me."

Bertie did not reply at once.

"Yet one could see the line of the seat," he said.

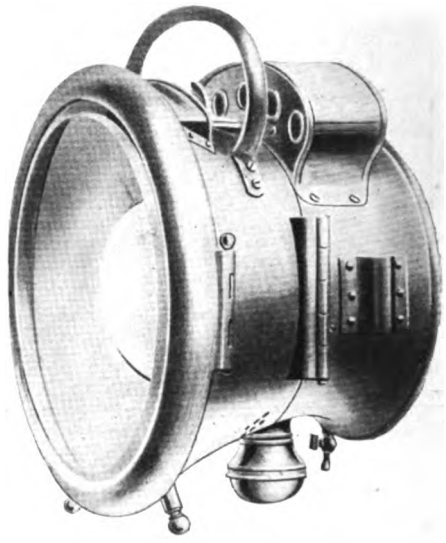
Wilfred passed into the hall, and locked the door behind them.

"Go on into the drawing room, Bertie," he said; "I will just ring and find out. I shouldn't mention it to my wife if I were you."

[TO BE CONTINUED.]

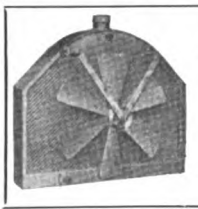
[The next chapter will be written by Percy White; the third by Katherine Tynan; the fourth by Iota; and the conclusion by Max Pemberton.]

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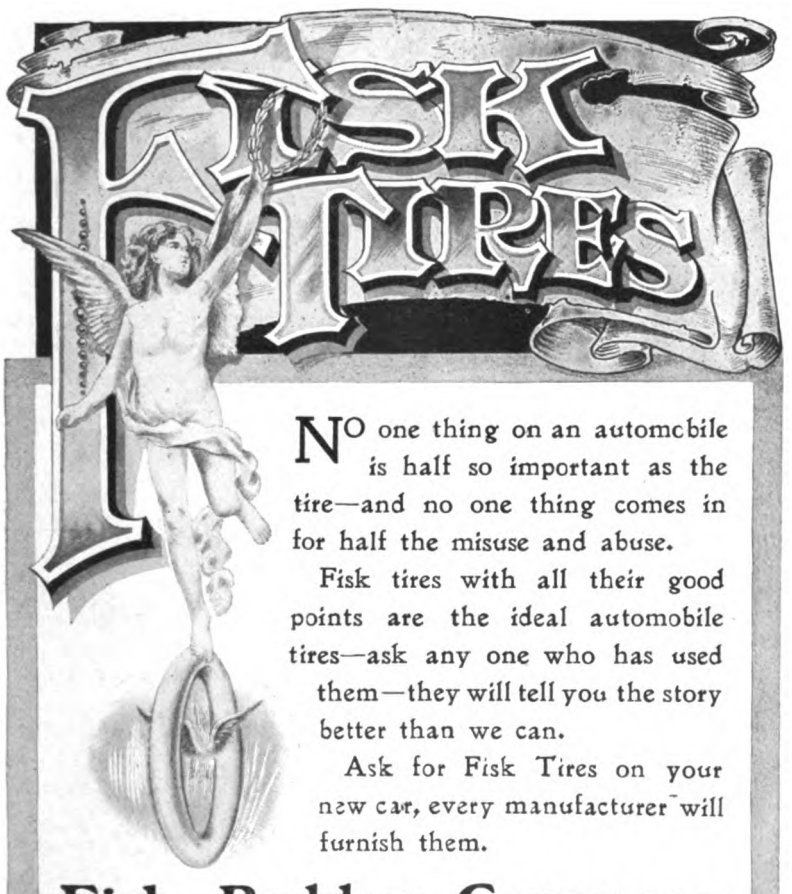
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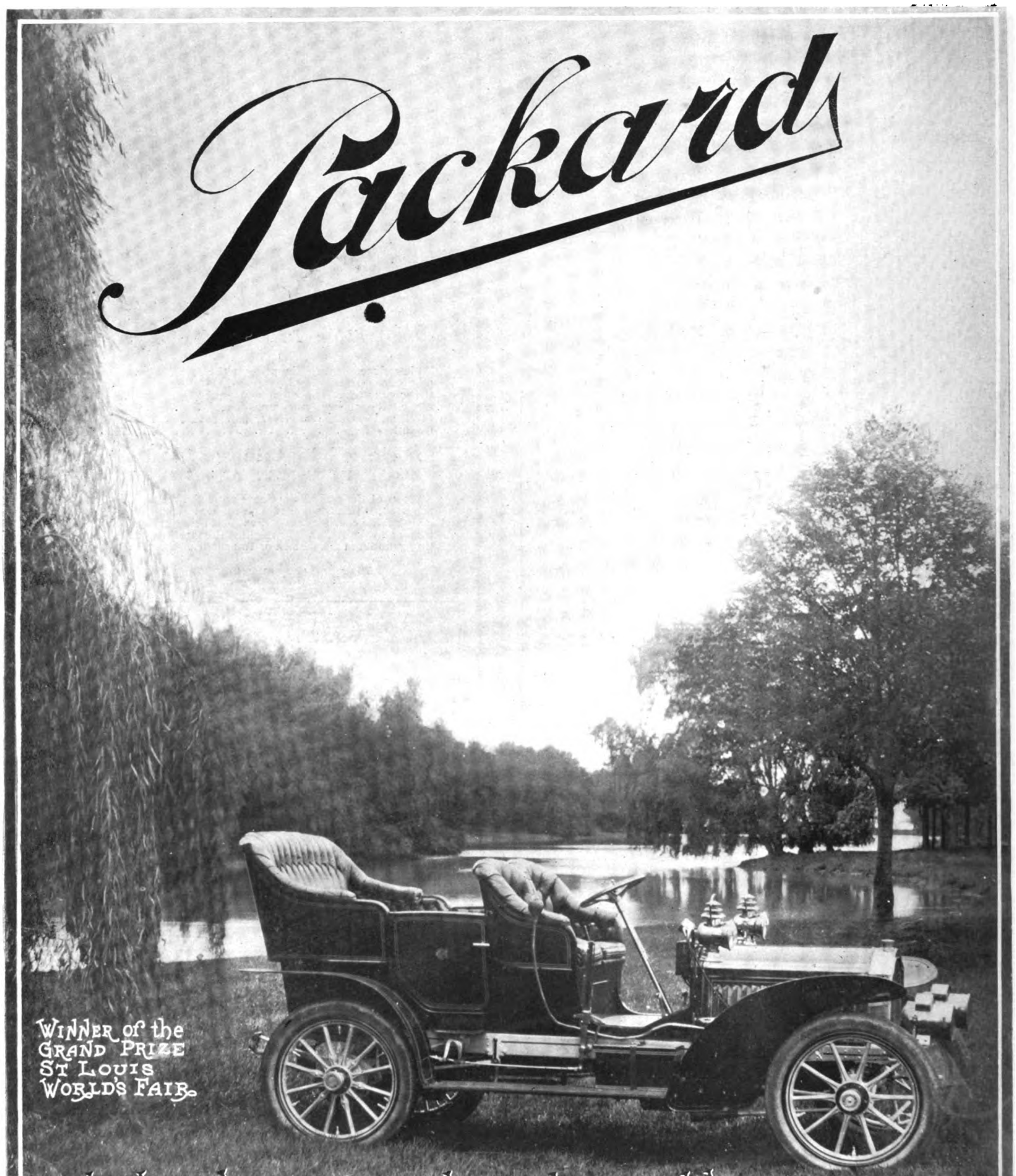
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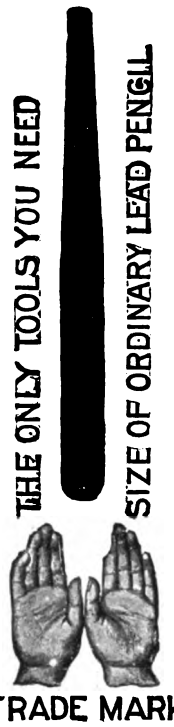
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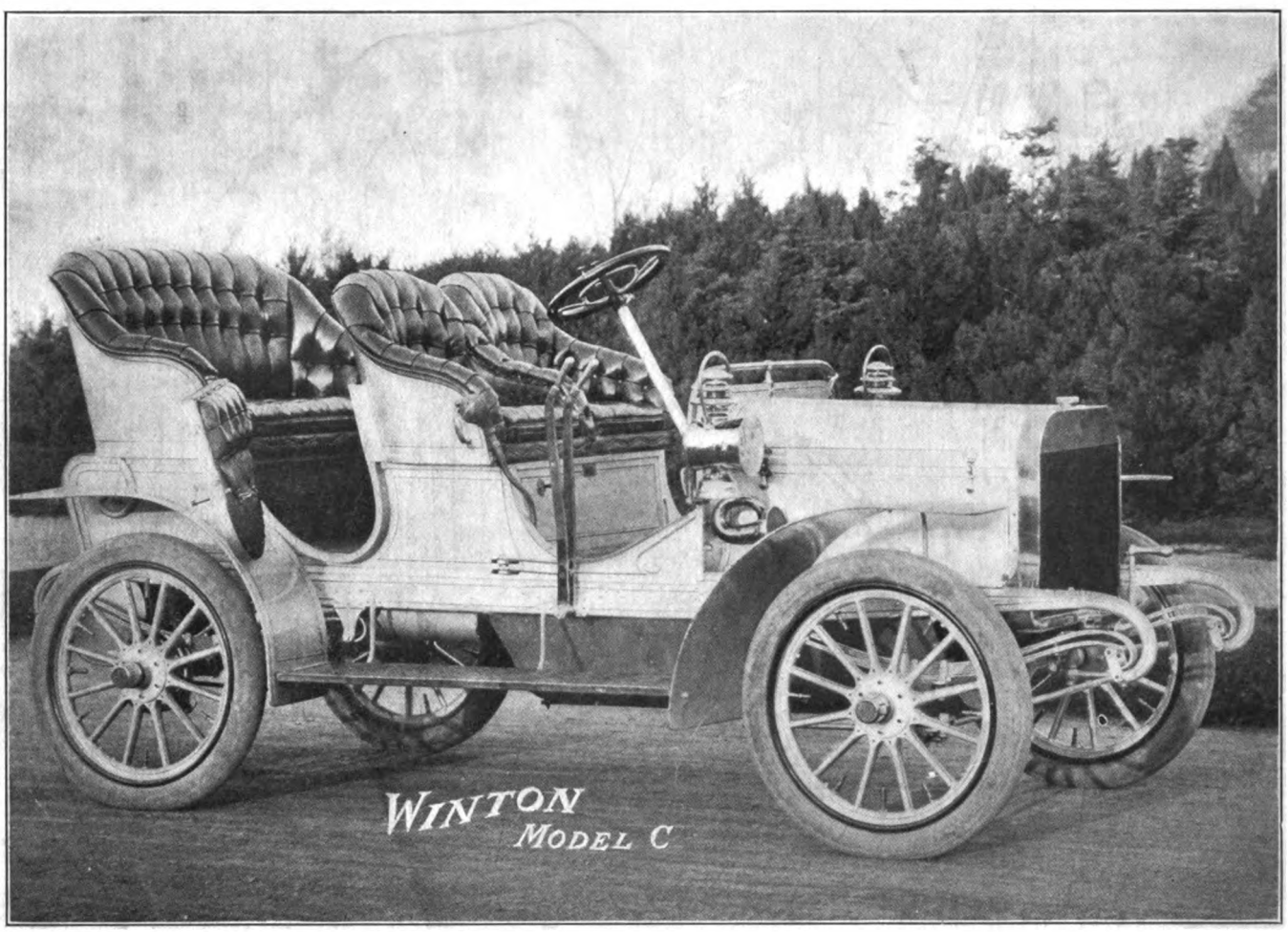
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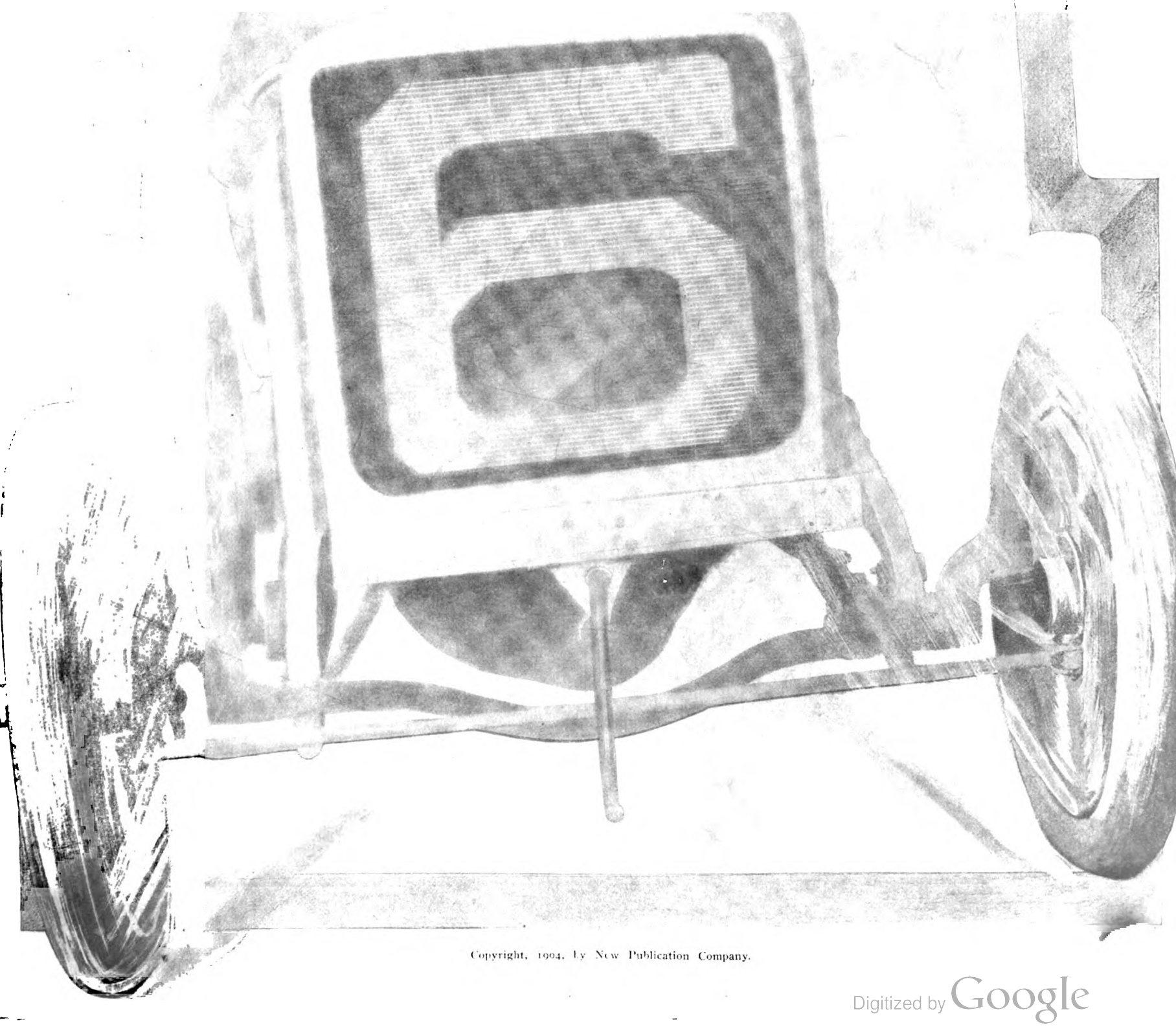
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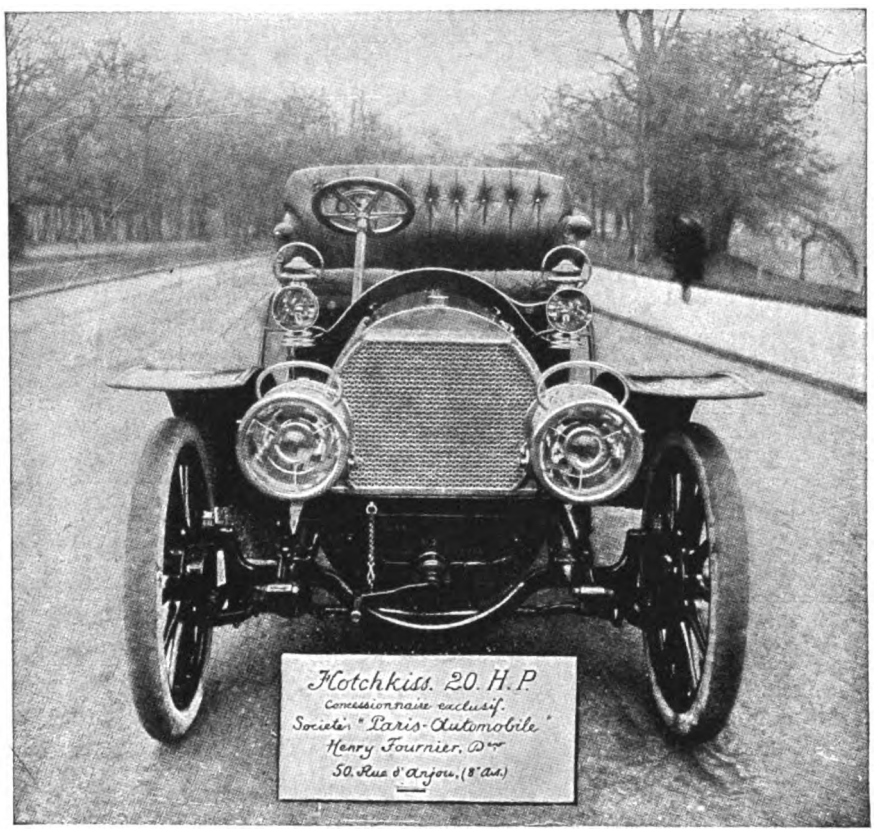


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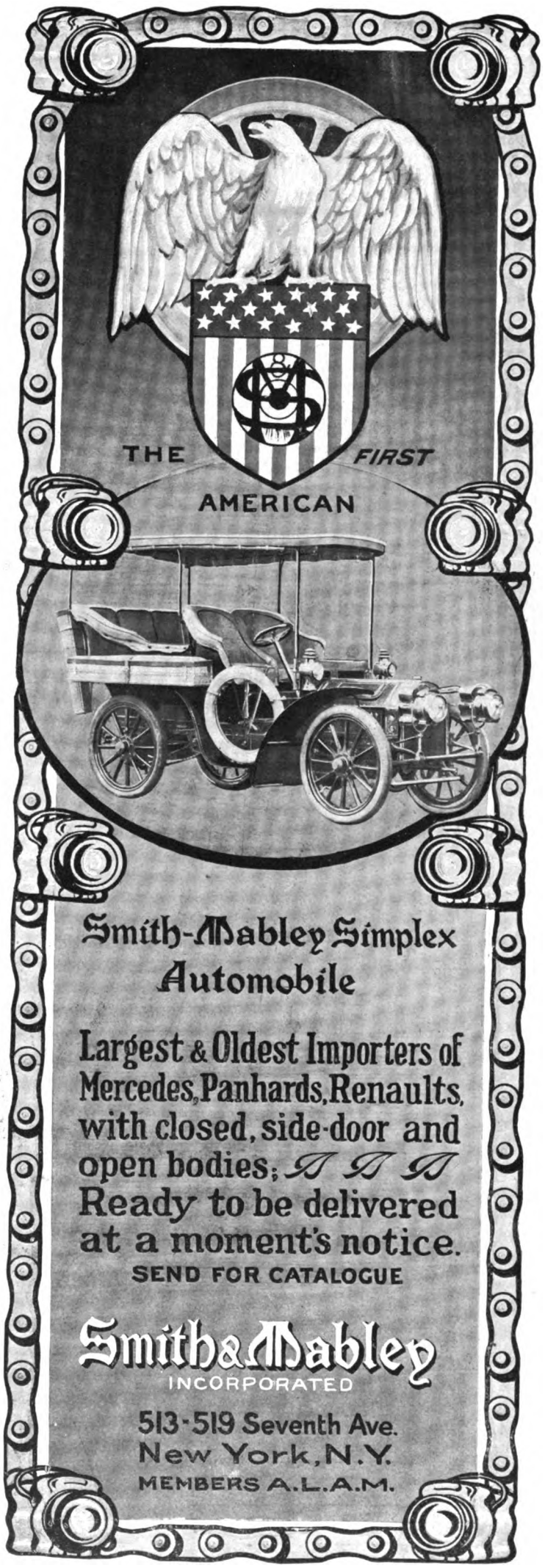
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Built Like A Gun

By Gunmakers

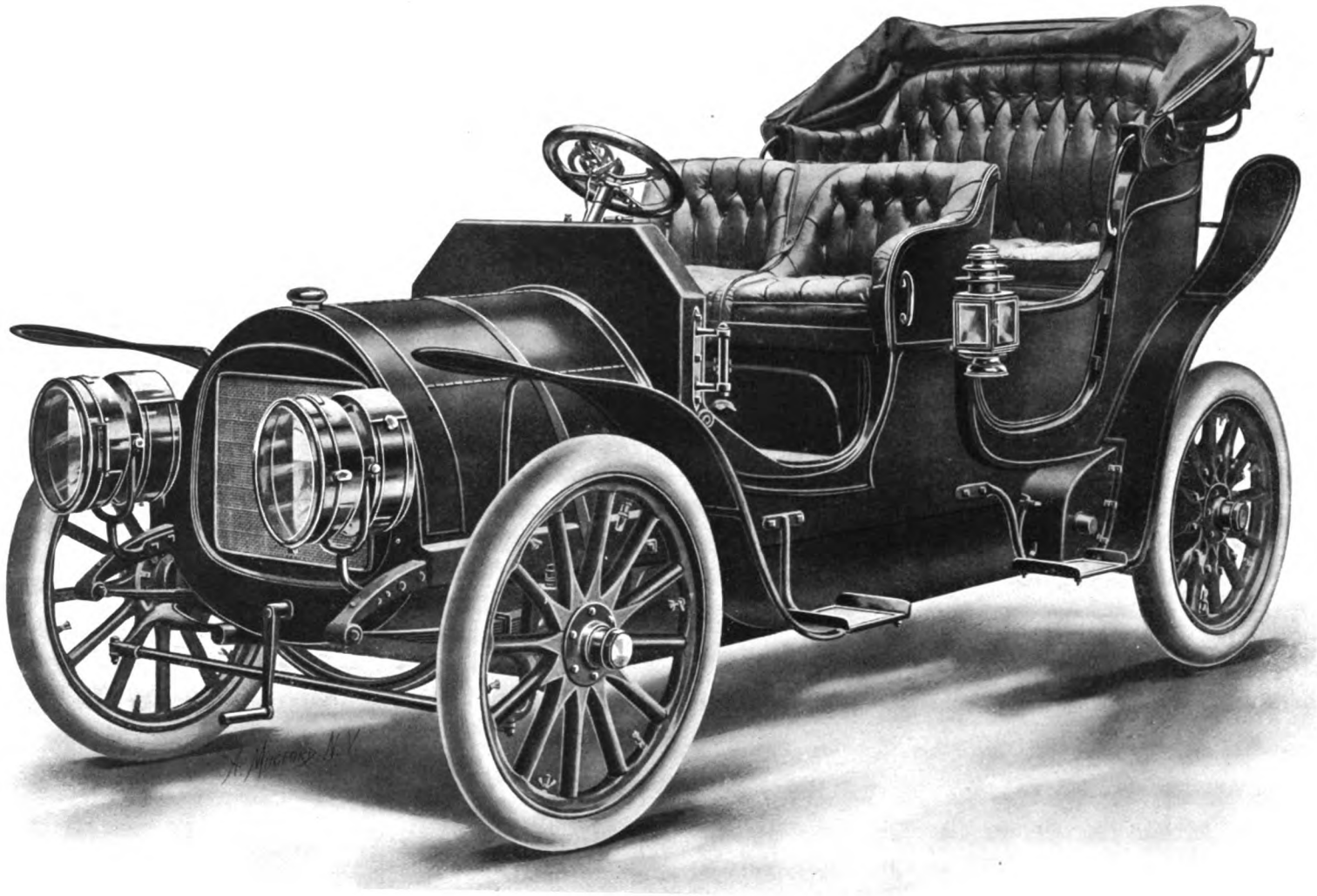
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WORTHINGTON AUTOMOBILE CO.

Fifth Avenue and 45th Street
NEW YORK



Worthington "Bollée" 24 H. P. Touring Car

CARS IN STOCK FOR IMMEDIATE DELIVERY

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MOTOR'S INFORMATION BUREAU

There are two sections to every magazine—the editorial and the advertising. Neither is more important than the other. The reader buys a magazine for the interest which the editorial section has for him, and he expects the advertising section to be an *information bureau* of his needs.

The advertising pages of this issue of MOTOR should be as carefully read as the text pages, because they are its readers' *information bureau*. If you wish to buy a motor-car, you will find the standard makes advertised in MOTOR. If you wish tires, lamps, motor-car accessories, etc., you will find only the standard makes of anything represented in MOTOR's advertising pages.

Never hesitate to write to advertisers for more complete information than the advertisements contain. You incur no obligation, if you do. And when you do, kindly mention MOTOR.

For information about anything not in MOTOR,, write us and we will see that you are informed.

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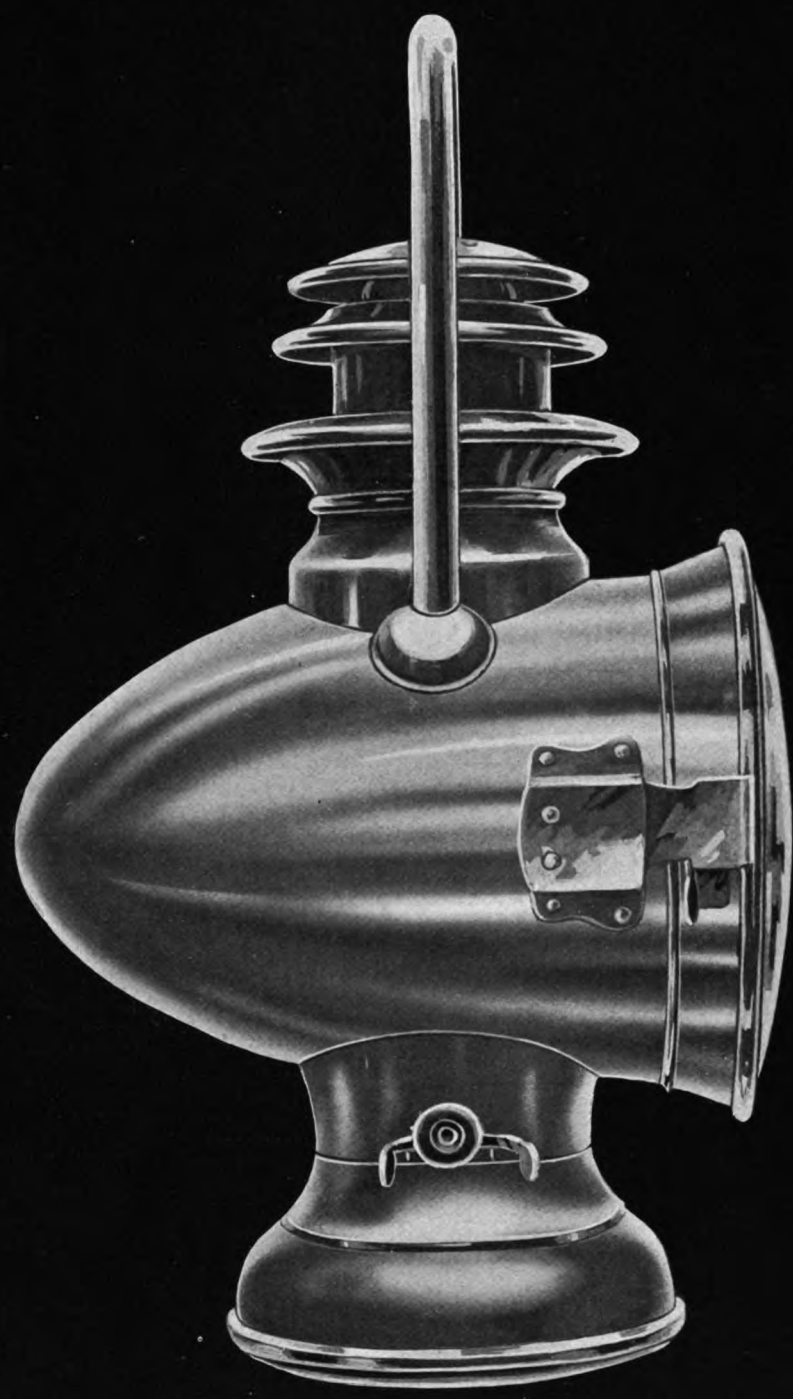
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Latest Creations from the Lamp Shop of

GRAY & DAVIS



Design Patent Applied For

Style 25

Bullet Oil Side Lamp

For Medium Size Cars

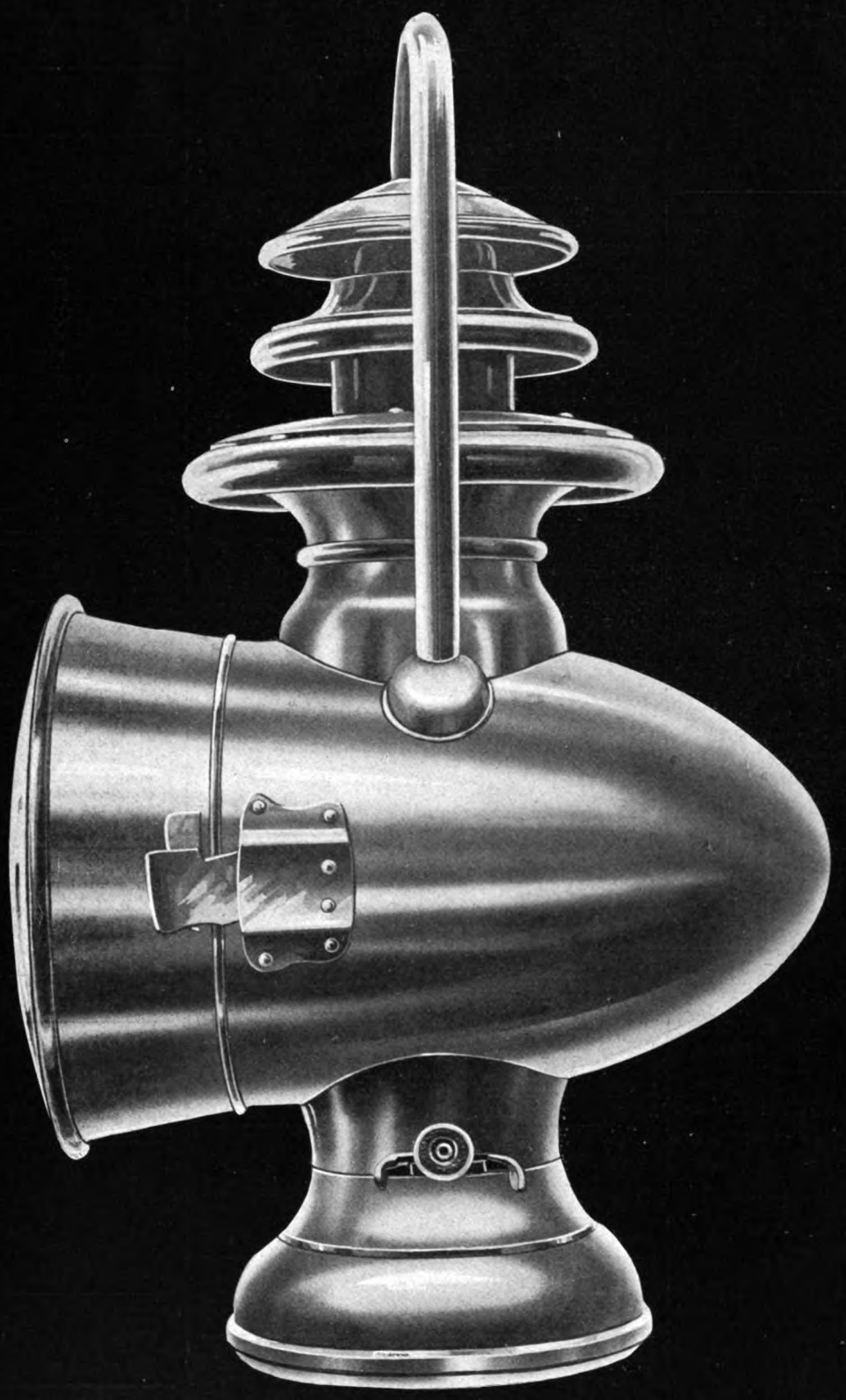
The best Automobile manufacturers find in these lamps all the style and appearance that their fastidious taste demands, and in addition absolute confidence in their wearing qualities.

GRAY & DAVIS, AMESBURY, MASS.

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Latest Creations from the Lamp Shop of

GRAY & DAVIS



Design Patent Applied For

Style 26

Bullet Oil Side Lamp

For Large Cars

When considering what lamp to put on your car the force of practical merit must have its fair share in the appropriation. Results demand it. Our contention is that we give the most satisfactory automobile lamp in America. This contention is well founded, and we ask you to try our lamps to prove this fact.

GRAY & DAVIS, AMESBURY, MASS.

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HOTEL BELLECLAIRE, Broadway and 77th Street, New York City. Luxurious Rooms for Permanent and Transient Guests. Restaurant a Feature. Exquisite Palm Room. Art Nouveau Cafe. Royal Hungarian Orchestra. "Most Artistically Beautiful Hotel in the World." Every improvement known to modern ingenuity. Write for our magazine, *"The Hotel Belleclaire World."* Can offer few single rooms, with bath, beautifully furnished, suitable for two people, $60 per month. MILTON ROBLEE, Proprietor.

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ALBANY, N. Y.—Stanwix Hall.
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ATLANTIC CITY, N. J.—Hotel Chetwoode.
ATLANTIC CITY, N. J.—The Rudolph.
ATLANTIC CITY, N. J.—Hotel Traymore.
ATLANTIC CITY, N. J.—Hotel Dennis.
ATLANTIC CITY, N. J.—New Hotel Piermont.
ATLANTIC CITY, N. J.—The Chalfonte.
ATLANTIC CITY, N. J.—Young's Hotel.
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BEDFORD, PA.—Bedford Springs Hotel.
BEDFORD, PA.—Hotel Waverly.
BEDFORD, PA.—Bedford House.
BEDFORD, PA.—Hotel Chalybeate.
BELLPORT, L. I.—Wyandotte.
BOSTON, MASS.—Hotel Somerset.
BOSTON, MASS.—The Berkeley.
BRETTON WOODS, N. H.—Mount Pleasant.
BRETTON WOODS, N. H.—The Mount Washington.
BUFFALO, N. Y.—Hotel Breezel.
BUFFALO, N. Y.—Mansion House.
BUFFALO, N. Y.—The Iroquois.
CALDWELL, N. J.—Monomonock Inn.
CATSKILL, N. Y.—Smith House.
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CHICAGO, ILL.—The Stratford.
CHICAGO, ILL.—Victoria Hotel.
CHICAGO, ILL.—Lexington Hotel.
CHAMBERSBURG, PA.—Hotel Washington.
CINCINNATI, OHIO.—Grand Hotel.
CLASON POINT, N. Y.—The Inn.
CLEVELAND, OHIO.—Kennard.
COLUMBUS, OHIO.—Chittenden.
DELAWARE WATER GAP, PA.—The Glenwood.
DELAWARE WATER GAP, PA.—Water Gap House.
DETROIT, MICH.—Hotel Metropole.
DETROIT, MICH.—Library Park.
EASTON, PA.—Paxinosa Inn.
EAST ST. LOUIS, ILL.—Royal Hotel.
ELMIRA, N. Y.—Delavan House.
ELYRIA, OHIO.—Andwur.
ERIE, PA.—Reed House.
FREDERICKSBURG, MD.—City Hotel.
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FRONTENAC, N. Y.—The Frontenac.
GANANOQUE, ONT.—The Inn.
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GREENFIELD, MASS.—The Devens.
GREAT BARRINGTON, MASS.—Berkshire Inn.
HAGERSTOWN, MD.—Hotel Hamilton.
HARRISBURG, PA.—Lochiel.
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KENNEBUNKPORT, ME.—Oceanic.
LARCHMONT, N. Y.—Blossom Heath Inn.
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LENOX, MASS.—Hotel Aspinwall.
LIMA, OHIO.—Lima House.
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MAGNOLIA, MASS.—The Hesperus.
MARION, MASS.—The Sippican.
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MILLBROOK, N. Y.—Millbrook Inn.
MORRISTOWN, N. J.—Mansion House.
MORRISTOWN, N. J.—United States.
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NARRAGANSETT PIER, R. I.—Atlantic House.
NARRAGANSETT PIER, R. I.—The New Mathewson.
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NEW HAVEN, CONN.—Moseley's New Haven House.
NEW HAVEN, CONN.—Hotel Davenport.
NEWPORT, VT.—Memphremagog House.
NIAGARA FALLS, N. Y.—Tower Hotel.
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NEWBURG, N. Y.—Palatine Hotel.
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OWEGO, N. Y.—The Ahwagu.
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PHILADELPHIA, PA.—Windsor Hotel.
PHILADELPHIA, PA.—Hotel Vendig.
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PINE HILL, N. Y.—The Alpine.
PINE HILL, N. Y.—The Winterton.
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SPRINGFIELD, ILL.—Leland House.
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STAMFORD, N. Y.—Hotel Hamilton.
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TOLEDO, OHIO.—Boody House.
TOLEDO, OHIO.—Hotel Madison.
TRENTON, N. J.—Hotel Sterling.
TRENTON, N. J.—American House.
UTICA, N. Y.—Bagg's Hotel.
UTICA, N. Y.—The Butterfield.
WASHINGTON, D. C.—Metropolitan Hotel.
WASHINGTON, D. C.—St. James.
WASHINGTON, D. C.—Shoreham.
WATCH HILL, R. I.—New Plimpton.
WORCESTER, MASS.—Bay State House.
WYNDHAM, N. Y.—Mountain House.
YOUNGSTOWN, OHIO.—Park Hotel.
ZANESVILLE, OHIO.—Hotel Rogge.

MOTOR MESSENGERS

AN IMPORTED GASOLINE STATION or Opera Bus, to carry 6 persons; in first-class condition; demonstration given; price, $650; model VIC Auto Car Runabout, $300; Pope-Toledo 4-cylinder, cost, without top, baskets, extra tires and parts, $4,000; used very little and as good as new, price $2,800. Easton Automobile Co., Easton, Pa.

CAPITAL WANTED.—Incorporating to manufacture motorcycle; thoroughly tried and proven; perfect running motor; lady or gentleman rides with perfect ease and confidence; tremendous field. For particulars, address Graff, 75 Hicks Street, Brooklyn, N. Y.

THE AUTOMOBILE SUPPLIES CO., of 1534 Glenarm St., Denver, Colo., is in the market for standard automobile supplies and accessories. Mr. E. T. Weiant, former manager of The Consolidated Supply Co., is manager of the new concern.

FOR SALE OR EXCHANGE.—A two-cylinder, water-cooled runabout, new; built for a Dr.; price, $250. or will trade for air-cooled runabout. J. B. Coons, Kingston, N. Y.

FOR SALE.—1 pair of $15 Solar Gas Lamps, $6; 1 pair of Duplex Gas Lamps, $5; 1 Locomobile Spur Deferential gear, $6; 1 Locomobile Bevel Deferential gear, $5; 1 Reliance low water alarm, $6; regular price, $15; 1 pair of Victor air and water pumps, $25; 1 Veeder Odometer, $1.50. Robert Roth, 1423 North Ave., Bridgeport, Conn.

FOR SALE.—Advance '05 Car.—Federal Pressed Frame; Drop Axle; Bevel Shaft drive; 4 speed sliding gear; 15 h. p., 4 cylinder engine; Quad racing coil; double carburetter and muffler; multiple sight feed oiler; Diamond tires; Mercedes style hood and radiator; Packard control; French design body; going abroad; car never used—$800 takes it; cash. Guaranteed. Dr. Adams, Wolbach, Neb.

FOR SALE.—One Pope-Hartford. One Cadillac, Model A. One Marr Auto Car and one Oldsmobile. All in first-class condition; for further particulars and prices, address The Zimmerman-Smith Co., North Tonawanda, N. Y.

ELECTRIC VICTORIA STANHOPE, cost $1,250; run 350 miles. Exide battery; guaranteed perfect. A bargain. O. H. Schildback, Watertown, N. Y.

FOR SALE.—$1,240 buys my 1903 White Steam Tonneau Touring Car; perfect order; fast car; color green; tires good condition; extra inner tubes; a bargain for cash; positively no trades. Geo. W. Clay, 616 Pleasant St., Paris, Ky.

FOR SALE.—Union Special side wheel Seam Covering, $100; Union Special Dewees Trimmers, $70; Singer Nat. bar end Button-holes 61-12, $90; Union vibrating bar Button Sewers, $60; Willcox & Gibbs Lock Stitch high speed, $24; Wheeler & Wilson high speed class 61, $23; Merrow Scallop style 21 and 22, $100; Standard bar end Button-holes, $60 and $70. All are in positively A1 condition. H. Maimin, 328 Market St., Philadelphia, Pa.

FOR SALE.—Model B Cadillac, and extras; has been run about one thousand miles; good as new; price, $785. J. F. Kellogg, Avon, N. Y.

1904—30 H. P. MERCEDES car for sale; owner going abroad; side entrance; everything of the finest; run three months on city streets only. Address C. M. B., 5570 Chamberlain Ave., St. Louis, Mo.

FOR SALE.—White Stanhope, with dos-a-dos seat, at a bargain; A1 condition. Address Room 114, Theater Building, San Jose, Cal.

FOR SALE.—White Steam Touring Car; used only three months; in perfect order; owner going abroad; cost with extras $2,200; will take $1,600; chance of a lifetime for some one; for full information address E. B. Case, Bristol, Conn.

FOR SALE.—One 1903 Franklin in first-class condition, $675; one 1904 Franklin Tonneau, used for demonstrating, as good as new, $1,350; one 1904 Buckboard, latest improved, $250; one No. 16 Thomas tonneau, extra tire, complete with lamps, horn and tools, just refinished, $475; one 1904 Oldsmobile, complete with lamps, top, $450; one 1903 Oldsmobile, Midgley wheels, $350; one 1902 Oldsmobile, 1903 improvements, in first-class condition, $275; one 1904 Eldridge, used but a month, $550; one 1904 Northern, nearly new, $500; one 1904 Imperial, air-cooled, $750; one 1904 new Buckmobile, $900; one 1904 Mitchell, air-cooled, $550; one Mobile Steamer, equipped with 7 h. p. Keim engine, 18 in. boiler, top, wooden wheels, in first-class condition, $195; also 75 of the latest type Elbridge igniters, new, fully enclosed, for belt or friction drive. A bargain while they last at $11 each. The R. M. Cornwell Co., 416-420 S. Salina St., Syracuse, N. Y.

ROAD MAPS.—Ohio, 25c.; S. W. Ohio, 35c.; Ills., 25c.; Ky., 50c.; Mich., 25c.; Pa., 25c.; Ia., 25c.; Mo., 25c.; N. Y., 75c.; Wis., 25c. C. S. Mendenhall, Pub., 33 Opera Place, Cincinnati, O.

MOTOR CAR ADVERTISING.—A successful writer of commercial literature, three years in present position, desires charge of the catalogues and advertising of manufacturer or supply house. Realizing that motors are THE COMING BUSINESS, will accept small salary to get in this line of work. Address O. G. M., care MOTOR, 1789 Broadway, New York City.

FOR SALE.—New Rambler runabout; wheel stear; Columbia searchlight; neither ever uncrated; at a sacrifice. W. J. Johnson, 7 W. 107th St., New York City.

WANTED.—To sell 1904, 24 h. p. Pope-Toledo; used only two months; 500 miles; perfect condition guaranteed; baskets included; freight prepaid; $3,000. Perfectly satisfactory, but desire higher powered car. Address 404 Austell Bldg., Atlanta, Ga.

FOR SALE.—Model E Pope-Toledo. Was new July 4th, and is complete from top to bottom. Price, $2,800. Have ordered 1905 Model L. Car has just been run 630 miles. Chas. B. Sommers, Indianapolis, Ind.

18-20 MERCEDES car; best condition; completely equipped, belongs to Mr. Harlan W. Whipple. Can be seen at Garage, 140 West 27th Street. Price, $5,000.

OLDSMOBILE owners, equip your car with our 100-mile touring Radiator, price $15.00. Bliss-Chester Co., Providence, R. I.

MECHANICAL ENGINEER.—Automobile expert, John C. Higdon, Asso. Am. Soc. M. E., 25 years' experience, 8 in auto building. Am the designer of some of the most successful engines and complete autos now in use. I refer to owners. Write me for advice on your knotty problems. To buyers: Ask me to name best car for a given price. I do not favor St. Louis cars. Office, 605 Missouri Trust Bldg., St. Louis, Mo.

FOR SALE OR TRADE.—Desirable French type touring car, two vertical cylinders in front under hood 5"x5", sliding gear transmission, three speeds forward and reverse, two brakes, full equipment of lamps, horn, etc. A handsome powerful car; will send photo and detailed description upon request; will sell at decided bargain or will give good trade for an Olds, Northern, Pope-Tribune, Mitchell, Cameron, 1904 Orient or any desirable runabout. The Starin Company, North Tonawanda, N. Y.

FOR SALE.—Special Oldsmobile; extra large valves; very fast and wonderful hill climber; engine free runs 2,400 r.p.m.; lamps, storm apron, artillery wheels; tires in good condition; muffler cut-out, whistle, etc. Price, $475. Address 1900 4th St., S. E., Minneapolis, Minn.

ONE 1903 Oldsmobile Runabout, good condition; used as demonstrating car; and one 1904 Olds Touring Car, as good as new; will sell at a great sacrifice; good reasons for selling. Address Emmert Bros., Hagerstown, Md.

TWO SNAPS.—One 1904 Ford with tonneau and double opposed motor; large gas headlight, 2 side and one tail oil lamps; artillery wheels; tires, motor, wheels and vehicle in perfect condition, guaranteed; sold on account death of owner; first check for $575 takes it. Also one Oldsmobile, wood wheels, with leather top, apron and sole leather boot with lock in front; nickel-plated side oil lamps, tools and air-pumps; in perfect running condition; three good tires and one patched; first check for $275 takes it. Address "Ford-Mobile," P. O. Box 604, Augusta, Ga.

FOR SALE.—Picturesque ranch of 160 acres at Los Gatos, California, 54 miles from San Francisco. Twenty-five acres in fruit, vines, etc. Portion of land well forested. Ample supply of pure water for domestic and irrigation purposes. Altitude, 1,000 feet. Superb view of San Francisco, Oakland, San José, the Lick Observatory, and the Santa Clara Valley. Frost unknown. Excellent train service to San Francisco. The best roads for automobiles in the State extend 100 miles in almost every direction. Buildings include five-room cottage, barn and outhouses. Ocean 15 miles away. Would take part cash, the rest on mortgage, if desired. Address X Y Z, Motor, 1789 Broadway, New York City.

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New York City



THE MOBILE STORAGE AND REPAIR CO., Broadway and 54th St. Telephone, 3020 Columbus. Gasoline and Electric Cars stored and repaired by experienced men. Battery work a specialty. Painting and upholstering. Large machine shop.

TOURING CAR COMPANY, 310 West 59th Street.
WEST END AUTOMOBILE PALACE, 202-212 West 89th Street.
THEODORE E. SCHULZ' AUTOMOBILE STATION, 2642 Broadway.
HARLEM AUTOMOBILE COMPANY, 159-163 West 127th Street.
PACKARD MOTOR CAR COMPANY OF NEW YORK, 317-319 West 59th Street.
BROADWAY AUTO EXCHANGE, 151 West 51st Street.
TUXEDO AUTOMOBILE STATION, 33-39 East 58th Street.
PIONEER AUTOMOBILE CO., 54 West 43d Street.
AUTOMOBILE EXCHANGE & STORAGE CO., 133-139 West 38th Street.
RICHMOND AUTOMOBILE CO., 62 West 43d Street.
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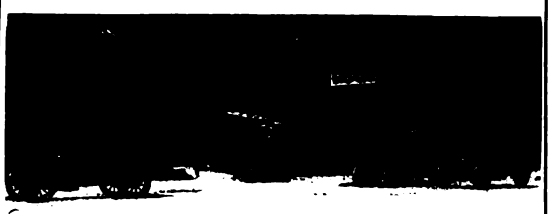
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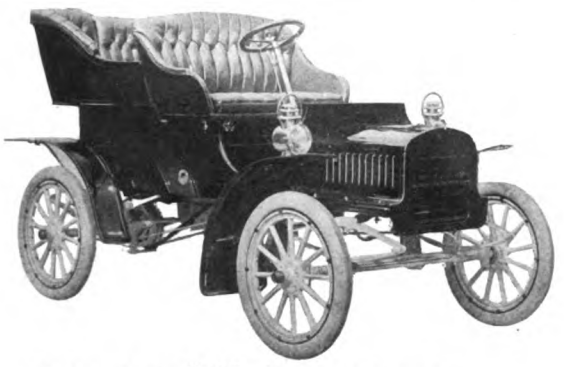
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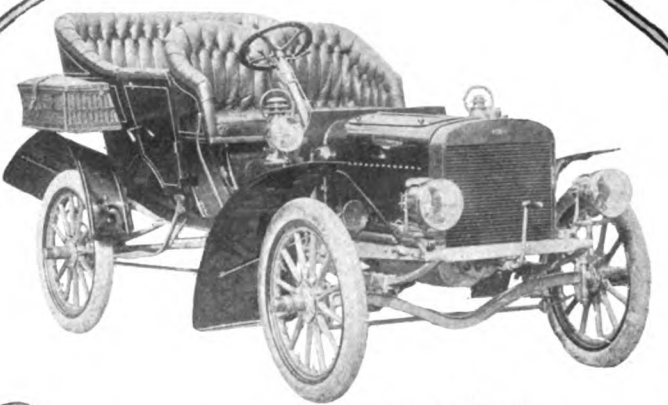
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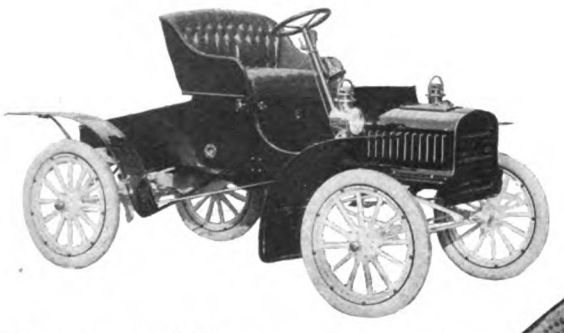
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A Monthly Magazine Devoted to Motoring of All Kinds.

Published by New Publication Company.

NEW YORK, BOSTON, CHICAGO, SAN FRANCISCO, LOS ANGELES.

Entered as second-class matter at the New York, N. Y., Post Office, March, 1904.

Principal Address: 1789 Broadway, New York

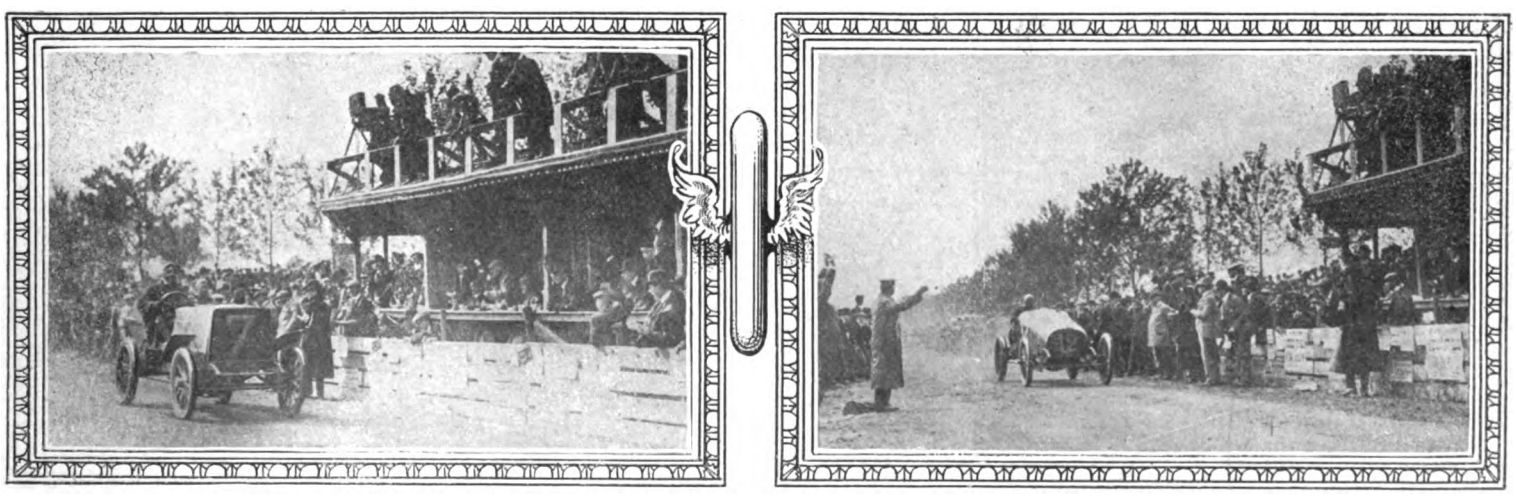
Branch offices: Chicago, 214 Madison Street; San Francisco, Hearst Building, Market Street; Los Angeles, Examiner Building; Boston, 82 Summer Street; London, 5 New Bridge Street, Ludgate Circus, E. C.; Paris, J. Milton, 17 Rue Brunel.

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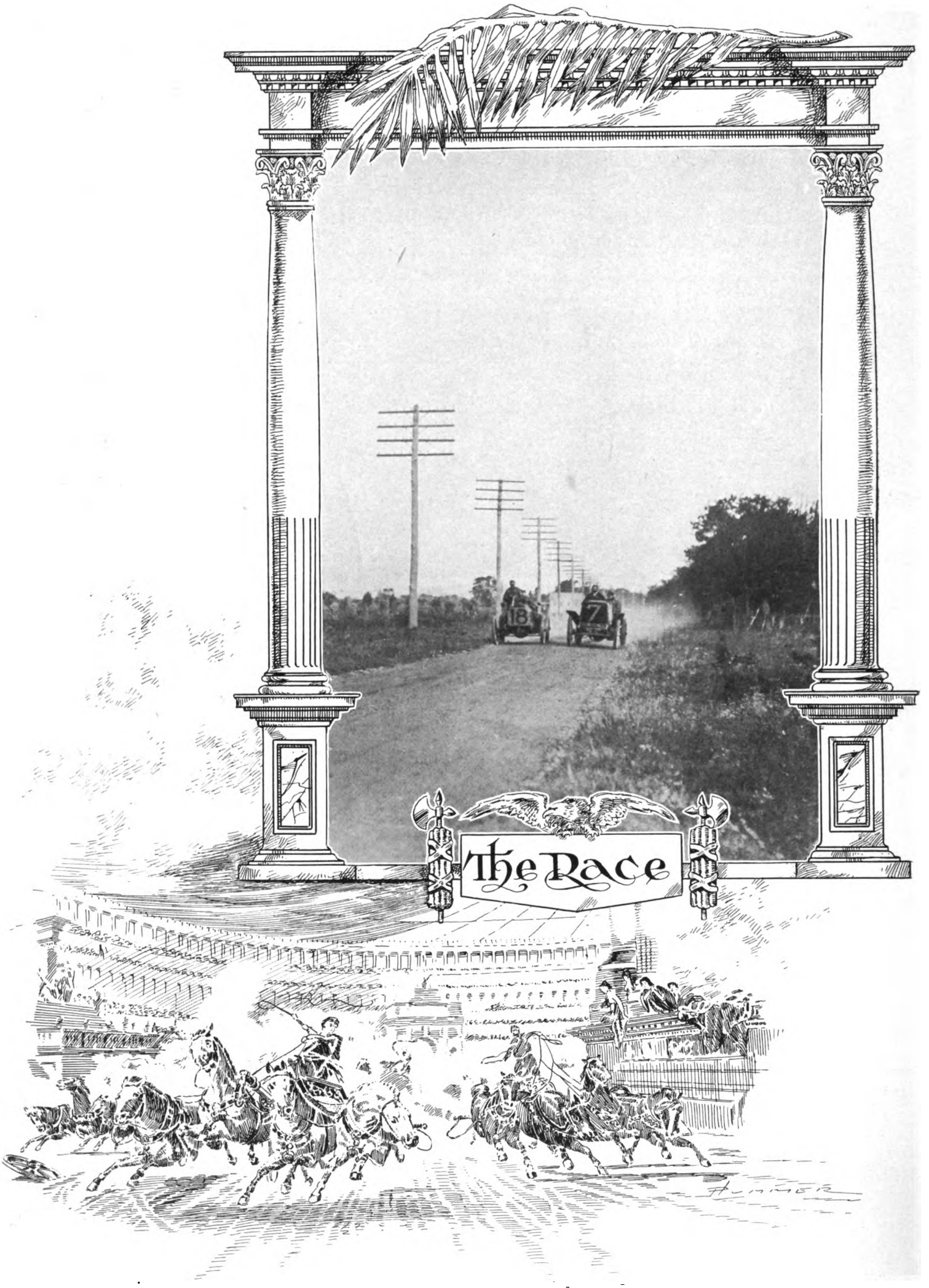
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MOTOR

DEVOTED TO MOTORING OF ALL KINDS

Vol. III. No. 2 **NOVEMBER, 1904** **Price, 25 Cents**



An hour and more ere the welcome face of Old Sol had arisen above the horizon of the Hempstead Plains on the morning of October 8 the thousands were well on their way to that point on the Jericho Turnpike in the north part of the Village of Westbury which had been selected as the start and finish of the great motor race for a cup—the one offered by William Kissam Vanderbilt, Jr.

From all directions the hurrying streams of expectant humanity overran the highways tributary to the thirty-mile isosceles triangle, with its short base and long sides, that was to serve as the circuit for the space-destroying marvels. Never before had Nassau County—once a hotbed of motorphobia—seen such a strange sight as this break-o'-day scurry to the cup course. Reluctantly the sleep-robbed patrons of the big hotel in Garden City left their comfortable couches, inwardly rebelling and mayhaps profaning the necessity that compelled a sunless and hurried breakfast; others who had failed to find a stopping place on Long Island journeyed all the way from the city in motor cars and on bicycles or patronized the apology of a railroad, and of these many survived the short night without touching head to a pillow.



CLEMENT, DEFEATED, DIRTY-FACED AND DISAPPOINTED, YET SMILING

But all had a craving to see the battle of the motor force, though all were not agreed as to the best vantage ground. Some wanted to behold the start, with its flood of incident; others preferred the long stretches of road that afforded views of the cars hurtling at topnotch speed; the two controls with their lessened despatch yet eventful happenings attracted absorbed onlookers; while the several dangerous turns gathered hordes of morbid, eager watchers for disastrous casualties.

And so the spectators for the great spectacular open-air production of the age found their places in the penetrating chill of the sombre morn as the gray streaks of dawn betokened the replacing of night by day. Bonfires added some cheer and curbed the bite of the sharp air, and revealed the earliest birds restlessly awaiting the coming of the motors. More strange than the performance itself was this arriving and placing of the scattered audience of a quarter million souls and perhaps a few odd.

To Westbury went the commission in charge of the race—Messrs. Vanderbilt, Pardington, Breese, Weiss, Donald, Birdsall, Riker, and Butler. Here was the storm center. One by one the boisterous road craft appeared, none disputing their right of way. A single one of the eighteen loitered up the road because of an obstinate clutch. Chaos seemed to reign. Officials worked indefatigably carrying out the directions of a quiet young man in a big fur coat. The society occupants of the grandstand "parked" their cars in adjoining fields and then clambered to the rough-boarded seats. Newspaper men swarmed in and about the press stand; messenger boys actually moved with alacrity, and telephone girls tried hard to connect quickly impatient reporters with their home offices.

Referee Vanderbilt filled the role that he had taken, answering question after question and issuing order after order. Chairman Pardington aided efficiently. Starter Gillette whipped the snorting monsters into line. The Chronograph Club—borrowed from Boston—announced that the timing equipment stood ready for business all around the triangle. Dr. Lanehart quietly told how the Nassau Hospital ambulances had been distributed at the danger spots of the course, adding that he hoped there would be small need for their services. Mr. Vanderbilt had at convenient call his white-coated Mercedes to carry the doctor and himself if the dreaded summons came—which it did, unfortunately, later in the day.

Gradually the confusion regulated itself to well-defined channels. The glow of the rising sun through the rifts of clouds was diminishing the strength of the penetrating atmosphere. It was close to the hour of six, and as it neared the excitement became acute and painful. The fear that the day might give birth to a chain of disasters was a feeling which entered the minds of not a few.

Mournfully did S. B. Stevens watch his Mercedes come to the line, in charge of his driver, A. L. Campbell, the owner having succumbed to parental influence. The minutes wore away with distressing slowness before "No. 1" got the word, threw in the clutch and jumped away to a huzzah of relieving



THE STARTING AND FINISHING POINT AT WESTBURY, THE STORM CENTER OF THE RACE

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THE COURSE WAS THOROUGHLY SPRINKLED WITH CRUDE PETROLEUM

cheers. Then followed the angel-faced Gabriel, hero of the frightful Paris-Madrid, favorite for the Vanderbilt trophy, and praised by everyone for his excessive modesty. He and his DeDietrich began the race calmly without much fuss or feather. Joe Tracy, another of the unassuming but confidence-aspiring type, received a tribute of applause as he got under power with his somewhat hastily improvised Royal Tourist stock car —an American entry.

Webb and a Pope-Toledo came next; Arents, the unlucky, and his Mercedes started fifth; then Lytle and the second Pope-Toledo, destined to be a surprise of the day.

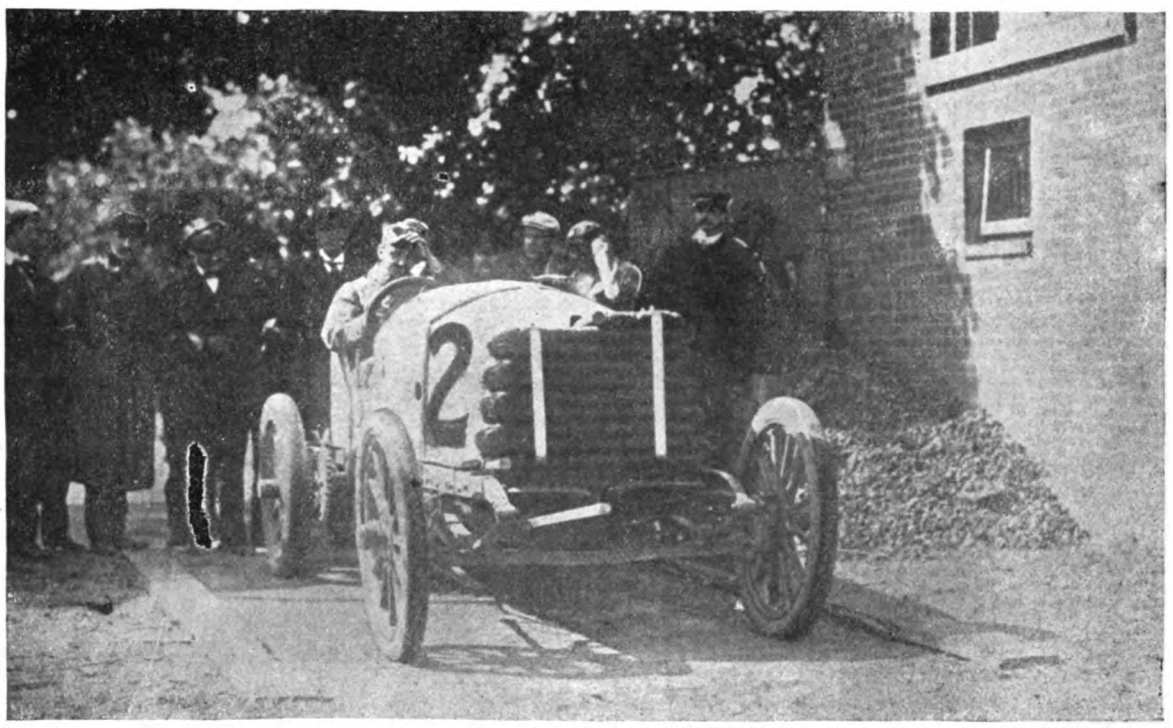
Heath, the Circuit des Ardennes winner, picked as the man to clip Gabriel's wings, made a commanding figure as he prepared for the fray. His Panhard throbbed threateningly as it bounded down the oil-streaked road like a brute that had been held in leash beyond the limits of its forbearance.

Hawley piloted the raging Mercedes of E. R. Thomas to a good start, and when he came to grief later there were many sympathizers.

Werner did not obtain any approval for his setting out with the Mercedes of Clarence Gray Dinsmore, the obliging foreign representative of the Automobile Club of America; in fact, the experts rated it an inferior effort.

Sartori, who had drawn "No. 10," was the belated one with the Fiat of Alfred Gwynne Vanderbilt. Not until after the race had been going for some time did Sartori get into the thick of it, and then in an unofficial manner that called for a stop at a control, though a revised decision permitted him to continue. Misfortune soon picked him again in the form of an obstinate clutch.

Bernin and the Renault of W. Gould Brokaw; Clement, the juvenile, and the powerful-looking Clement-Bayard; Tart, another Panhardite; Teste of the same camp; Schmidt, once the comrade of Fournier, with his beloved Packard Wolf; Frank Croker, son of the ex-Tammany "Boss,"



GABRIEL ON THE GARDEN CITY SCALES—OFFICIAL WEIGHERS RIKER AND BIRDSALL

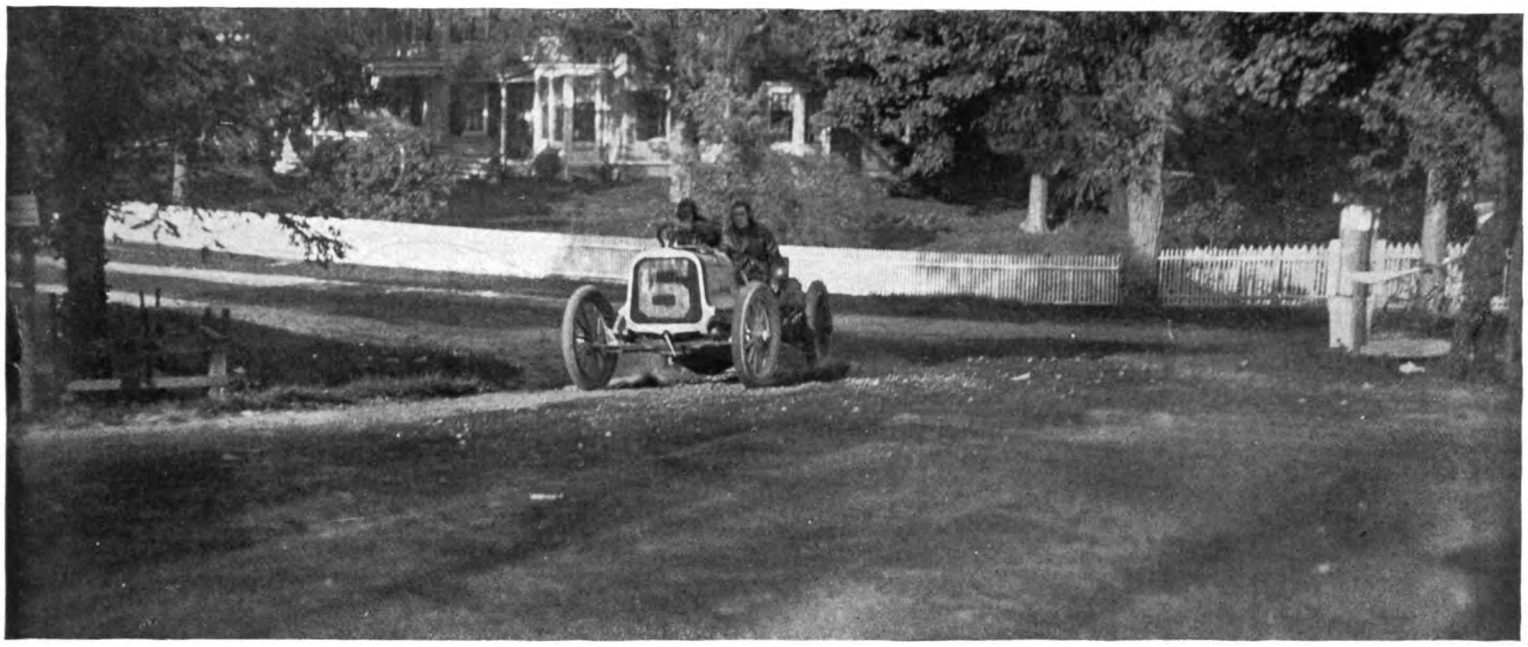
driving his new S. & M. Simplex; Luttgen and the Mercedes of Isidor Wormser; and finally William Wallace, the daring Bostonian, with his turbulent and powerful Fiat—that completed the list of participants, and none carried "No. 13."



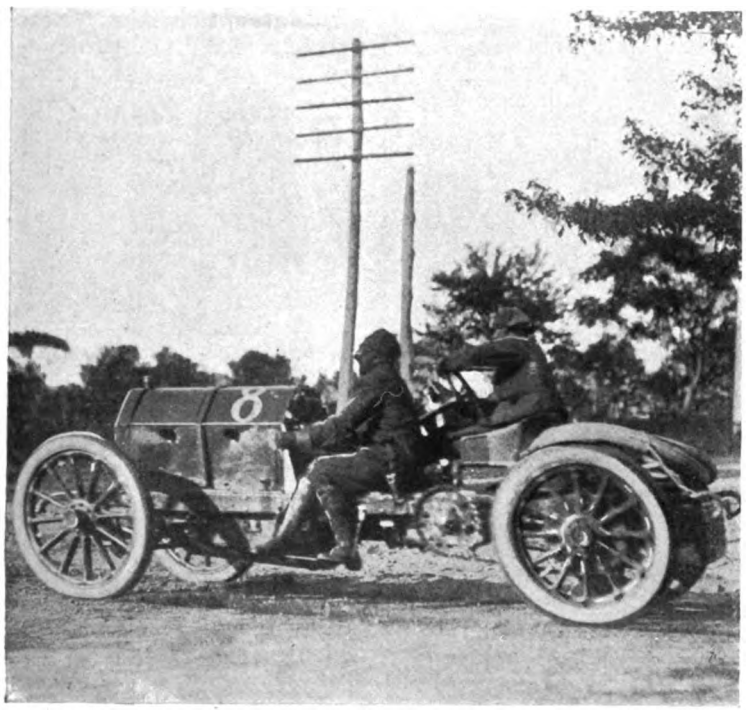
ONE OF THE MANY TIRE CAMPS THAT WERE LOCATED AROUND THE COURSE

The fierce game of the motors was under way. For seven hours they were to chase one another around the triangle with its doubtful surface and its risky turns. It was a contention wherein the man counted as well as the mechanical monster which he guided. A steady arm and an unfailing eye were unavoidable requisites in this distance-devouring sport. The stakes being played for were not alone the possession of the cup of silver with its gold lining; the makers of two worlds were fighting for the American motor car trade, as Mr.

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LYTLE IN THE 24 HP. POPE-TOLEDO MAKING THE JERICHO CORNER AT HIGH SPEED—THE ROUGH STONES PUNCTURED MANY TIRES AT THIS POINT



HAWLEY'S SWING OF THE BETHPAGE CORNER

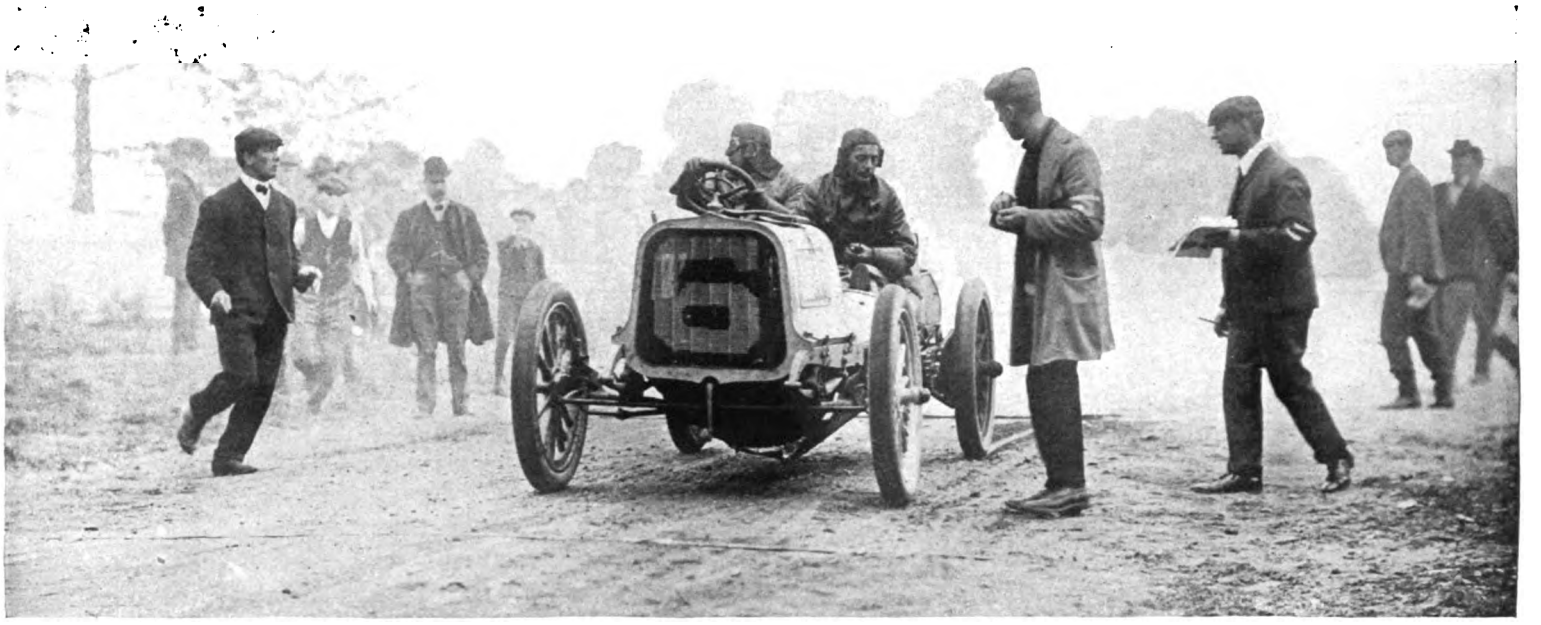


SARTORI (FIAT) MADE THE SPECTATORS GASP



AFTER THE RACE WAS UNDER WAY THE CROWD IMPATIENTLY WAITED FOR THE FIRST ARRIVAL AT WESTBURY

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THE ACTIVITY CAUSED BY A CAR ENTERING THE HEMPSTEAD CONTROL—LYTLE IN THE POPE-TOLEDO

Brisbane aptly described the prize that tempted the performers to endeavor that verged on the foolhardy. True there were several who reckoned only with glory and the cup, but the big premium traced to the industry and its invested millions.



REPLENISHING THE GASOLINE

But it must be told that the one catastrophe of the day had to do only with the cup. Young Arents, surcharged with the desire to prove his motor spurs, handled his car with a rash bravery that resulted in the death of his mechanic, Meusel, and nearly sent himself into the Great Beyond.

Every sport will have its victims, and motor competition will not be exempt. But even at its worst phase it deserves not the name of an amusement fit only for a "Roman holiday." One must employ caution driving a roused motor car, and novices had better know their lesson thoroughly before facing the starter. Arents, the impetuous, was a novice in racing, and the story subsequently told of how he excitedly left the Hempstead control with a tire before its shoe had been properly adjusted explains why disaster abruptly ended his driving for the day at Elmont. And so they chortled and spouted, and teufed clamorously, flying from the starting point the three miles to the Jericho turn in an inkling, taking this abrupt curve with scant hesitation, quickly reaching the Hicksville control, two miles away; easing down for a brief interval, and then diving out the Massapequa road for the risky Bethpage corner, three miles farther on; next six miles of straightaway earth skimming slackened in the Hempstead control with its momentary breathing spell: then five miles more to the apex of the roads at Queens, after making the swerve at Elmont where the Arents Mercedes came to grief; through Queens and a second turn into the Jericho turnpike, when the northern leg of the course offered a good stretch of going past the Waterbury stand.



WATER COOLING FOR TIRES

How they chased one another, the speedier occasionally overtaking a slower and distressed competitor; how the foolish onlookers crowded into the road until the sharp-eyed watchers sighted a monster, which would come tearing along and in some miraculous manner scatter without harm



AT THE EXIT OF THE HEMPSTEAD CONTROL, WHERE THERE WAS MUCH DOING ALL THE DAY

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HEATH, THE WINNER, TRAVELING AT 90 MILES AN HOUR ON THE JERICHO TURNPIKE

the chaff of humanity that ventured into its path and retreated safely by fractions of a second; how the rumors started up and down the course, telling of killed and maimed, which turned out to be gross exaggerations!

Of course, not a few fell by the wayside; tires punctured, gasoline tanks leaked, connecting rods broke, clutches failed to work, springs snapped, and cylinders cracked.

Once a mechanic fell out of his car, luckily escaping harm, but another one, regrets to tell, struck on his head and never awakened this side of the Great Divide. It is a hazardous sport, with the risks outweighing the glory, and those most concerned will privately admit the fact, though publicly denying it.

Gradually on each round of the snub-nosed triangle the field fell away. Wallace, after losing his helper on the Jericho turn, through a too sudden start, had clutch troubles at Hicksville and disconsolately became a spectator before completing the first circuit.

Arents had his calamity in the second round when his Mercedes capsized at Elmont. Werner disabled his car at a Mineola railroad crossing by jamming on the brakes too suddenly. Bernin was another who came to grief in the second round because of a twisted propeller shaft on the Bethpage road. Tracy also went to the bad in this round, his departure being related to a cracked cylinder.

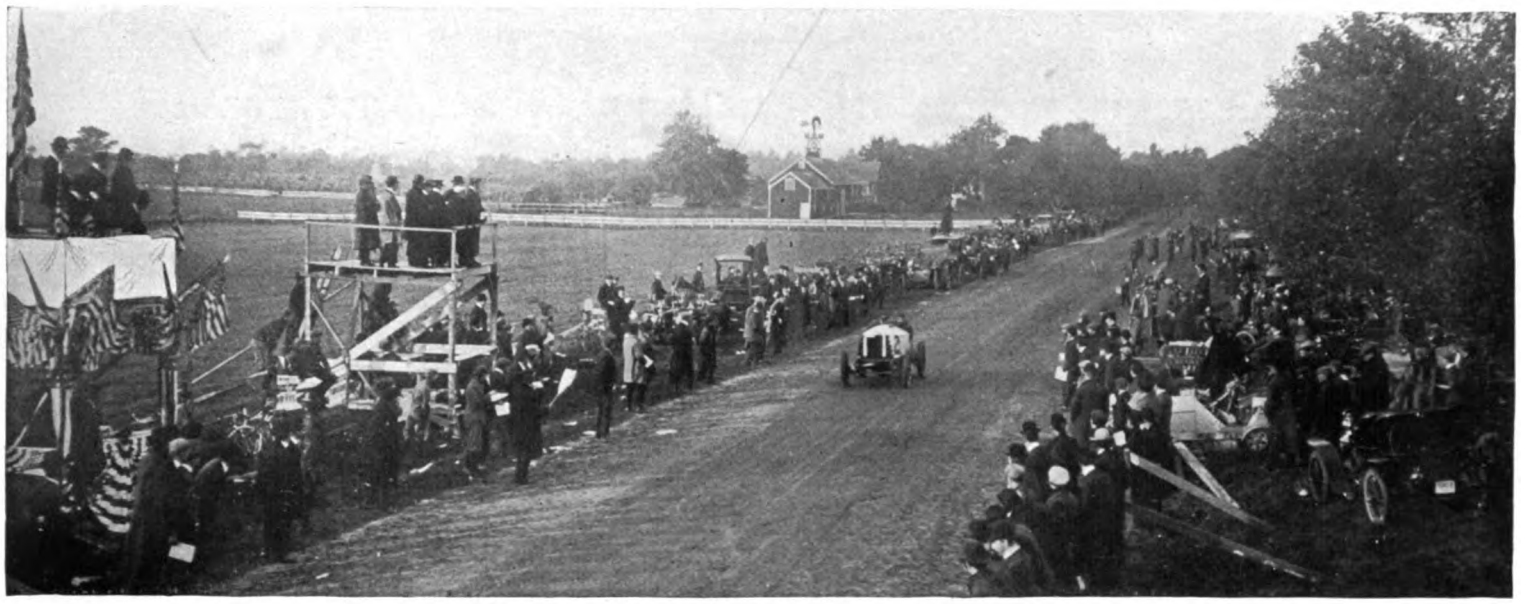
Hawley, after very promising driving for four laps, came to a sudden halt just after finishing the fourth with two broken springs. Teste, whose first lap in 24:04 was the fastest of the race, had to retire in the fourth round because of faulty ignition.

Webb disappeared in the sixth, running into a tree near Queens on account of a tire explosion and a broken knuckle.

The popular Gabriel, the one who caught the fancy of many, including the fair sex, went to his stable at Jericho in the seventh trip with a broken pump connection.

Tart was the victim of the eighth round, being within a short distance of the grandstand when a right rear tire came off.

This left seven of the eighteen cars still on the course, and the struggle had narrowed itself down to Heath, the American-born Parisian, and Clement, the young Frenchman, both of whom had been rivals on the other side.



GABRIEL, THE DISAPPOINTED FAVORITE, COMPLETING HIS FIRST ROUND OF THE COURSE



CLEMENT DID SOME TOP-NOTCH SPEEDING ON THE JERICHO LEG OF THE COURSE, FULLY AS FAST AS HEATH

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CHAIRMAN PARDINGTON

DETAILED INFORMATION CONCERNING ENTRIES

No.	Country.	Car.	H.P.	Owner.	Driver.	Mechanic.	Tires.
7	France	Panhard	90	Panhard-Levassor	George Heath	Eugene Lajunie	Michelin.
14	France	Panhard	90	Panhard-Levassor	Henri Tart	Jarlet	Michelin.
15	France	Panhard	90	Panhard-Levassor	George Teste	E. Artent	Michelin.
12	France	Clement	90	A. Clement	A. Clement, Jr.	Allezi	Michelin.
2	France	De Dietrich	80	R. E. Jarrige	Fernand Gabriel	D. Miollans	Michelin.
11	France	Renault	60	W. Gould Brokaw	Maurice Bernin	Felix Prossen	Michelin.
1	Germany	Mercedes	60	S. B. Stevens	A. L. Campbell	Sam Betty	Continental.
18	Germany	Mercedes	60	Isidor Wormser	William Luttgen		Continental.
8	Germany	Mercedes	60	E. R. Thomas, Jr.	Edward Hawley	Jordan	Continental.
5	Germany	Mercedes	60	George Arents, Jr.	George Arents, Jr.	Carl Meusel	Continental.
9	Germany	Mercedes	90	Clarence G. Dinsmore	Wilhelm Werner	Otto Gehry	Continental.
6	U. S.	Pope-Toledo	24	Pope Mfg. Co.	Herbert Lytle	Charles Soules	G. & J.
4	U. S.	Pope-Toledo	60	Pope Mfg. Co.	A. C. Webb	A. Anderson	G. & J.
16	U. S.	Packard	30	Packard Motor-Car Co.	Charles Schmidt	Wm. McIldrid	Goodrich.
17	U. S.	S. & M. Simplex	75	Frank H. Croker	Frank H. Croker	Harry Hill	Diamond.
3	U. S.	Royal	35	C. A. Duerr	Joseph Tracy	Al. Poole	Diamond.
19	Italy	F.I.A.T.	90	William Wallace	William Wallace	A. Donderi	Michelin.
10	Italy	F.I.A.T.	90	A. G. Vanderbilt	Paul Sartori	E. Cedrons	Michelin.



REPRESENTATIVE DINSMORE

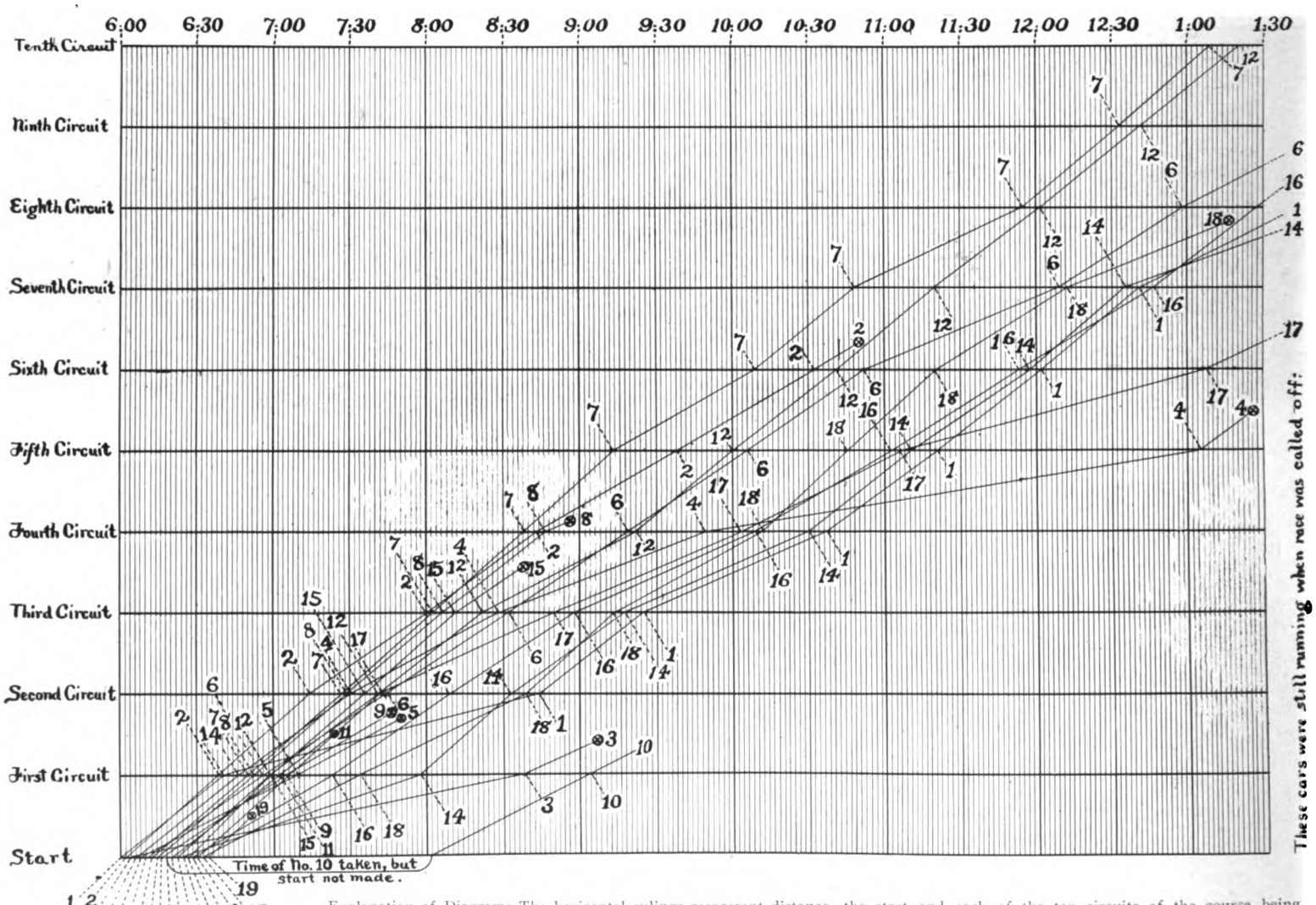
Teste, undoubtedly a capable driver, had been the leader for three laps, and then it was that Heath forged to the front in the fourth circuit, where he remained until the eighth round, when tire punctures compelled him to give way to Clement, who had lost some time in the fourth lap through a leaky gasoline tank. Thirty minutes of tire repairing for Heath in this eighth round enabled Clement to obtain a lead of 3 min. 8 sec. Once more in the running, Heath reduced the margin of his rival to 1 min. 48 sec. in the ninth circuit.

Then the excited throng awaited the final lap, and speculated during the waiting.

"Car coming! car coming!" shouted the clarion-voiced Prunty, and Heath came leaping up the road and did a whirlwind finish to the music of a volley of cheers.

If Clement arrived inside of ten minutes the victory would belong to him, for he started that much behind Heath at the beginning of the race. Fearfully the Heath adherents strained their eyes, momentarily expecting the blue-colored racer to

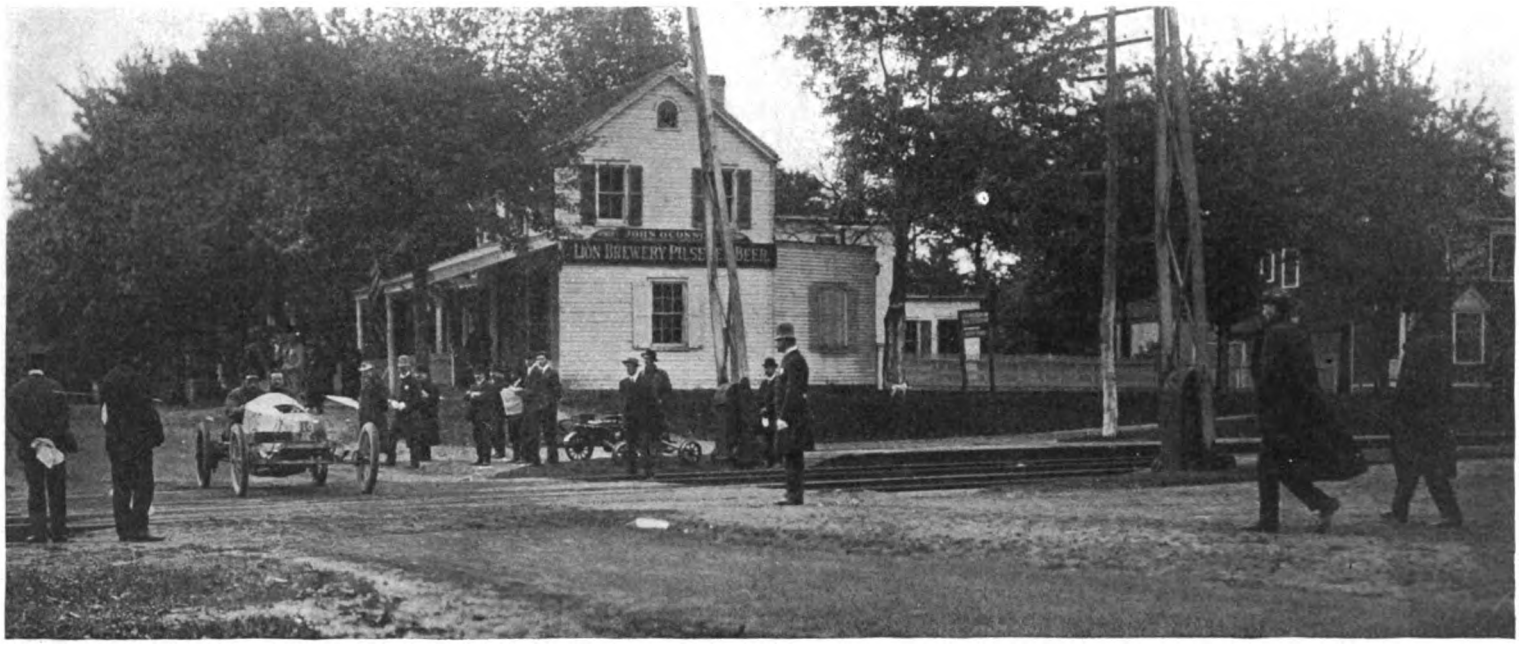
DIAGRAM SHOWING EXACT POSITIONS OF ALL THE CARS THROUGHOUT THE RACE



Explanation of Diagram: The horizontal rulings respresent distance, the start and each of the ten circuits of the course being denoted by a heavy line. Each circuit was 30.24 miles (48.67 kilometres) gross, but only 28.44 miles (45.77 kilometres) net, because of the 1.8 miles neutralized in the two controls, and for which nine minutes was deducted from the gross times for each circuit. The vertical rulings represent time, the finer lines being two minutes apart—the interval allowed between the cars as they were successively started. The heavier vertical rulings are half hours and hours apart. The performances of the different cars are denoted by the diagonal lines, commencing on the lower left edge of the diagram, and separated horizontally by the two-minute time interval. Each performance line, at the end of each circuit, is numbered with the number of the car, to facilitate comparison. The position of a given car at a given time is found by following down the line representing that time until the performance line of the car is reached. The performance lines highest up on a given time line are of cars that were ahead at that time. The time at which a given car reached a given point is found by following one of the horizontal lines, representing the end of a circuit, from left to right, until the performance line of the car is reached. The time is shown by the vertical line at this point. The higher and more to the left a performance line trends, the better the performance, as is shown by the line of No. 7, the winner. Thus, the fastest circuit in the race, that of 24 minutes and 4 seconds, in the first circuit, by car 15, is shown by a performance line rising more sharply upward than any other.* Parallelism of performance lines indicates that the cars represented ran at the same speed. The space between performance lines, measured vertically, indicates distances apart at a given time, and, measured horizontally, indicates times apart at a given distance, due allowance being made for the differences in starting times. Points at which performance lines cross show both time and point at which the cars affected changed position. A point at which a car dropped out is shown by a circle containing a cross, terminating the performance line of that car.

*Nine minutes for each circuit must be deducted from the apparent time of all cars, if the actual time is desired. This is on account of the neutralized controls.

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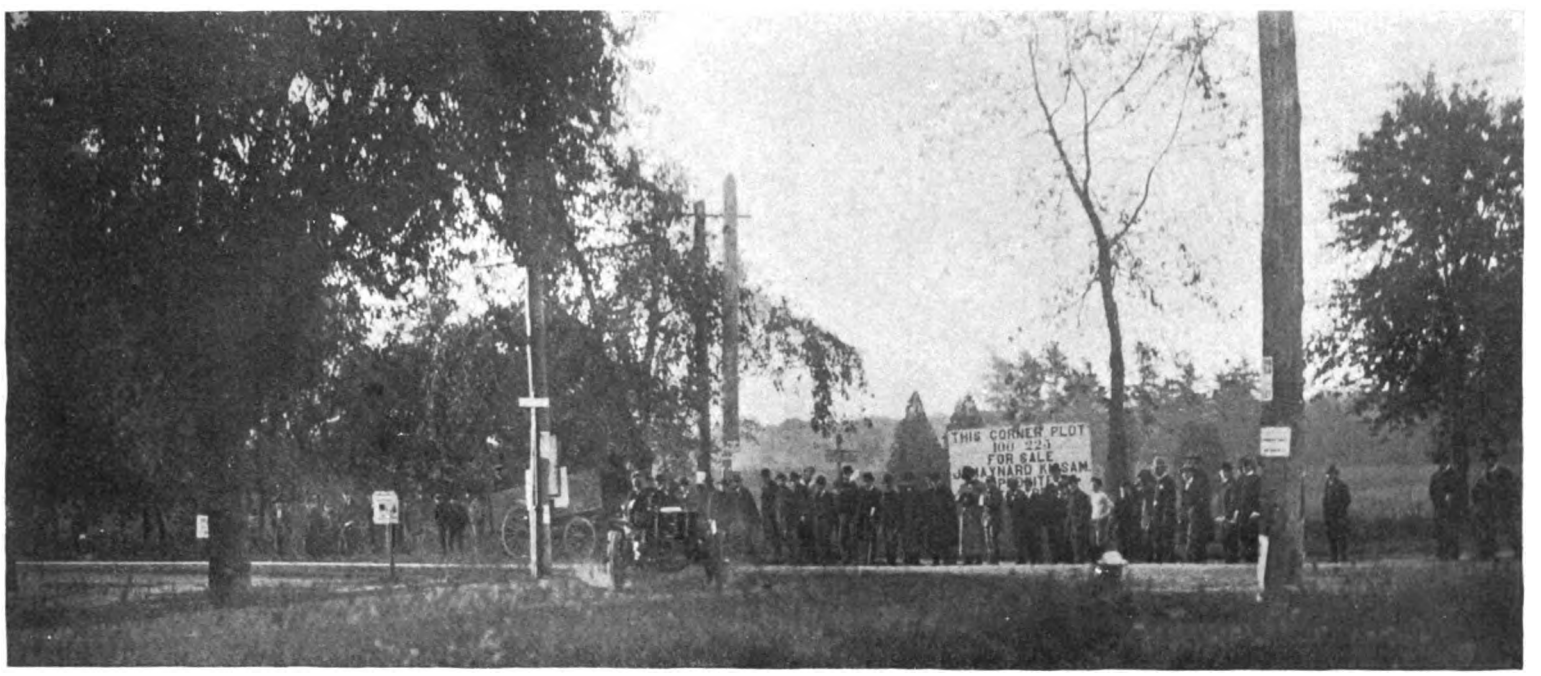


SCHMIDT AND THE PACKARD WOLF AT THE DANGEROUS RAILROAD CROSSING IN QUEENS, WHICH WAS WELL GUARDED

emerge. But the minutes ticked out their existence and Clement came not. Gleeful were the shouts of "Heath wins! Heath wins!" that went up at the expiration of the ten minutes.

And just then Clement hove in sight.

course they flooded the road in all directions, intent upon their home-going. A hint to Referee Vanderbilt from a newspaper man, and an edict went forth immediately notifying the remaining contestants to discontinue. Of these Lytle, who won

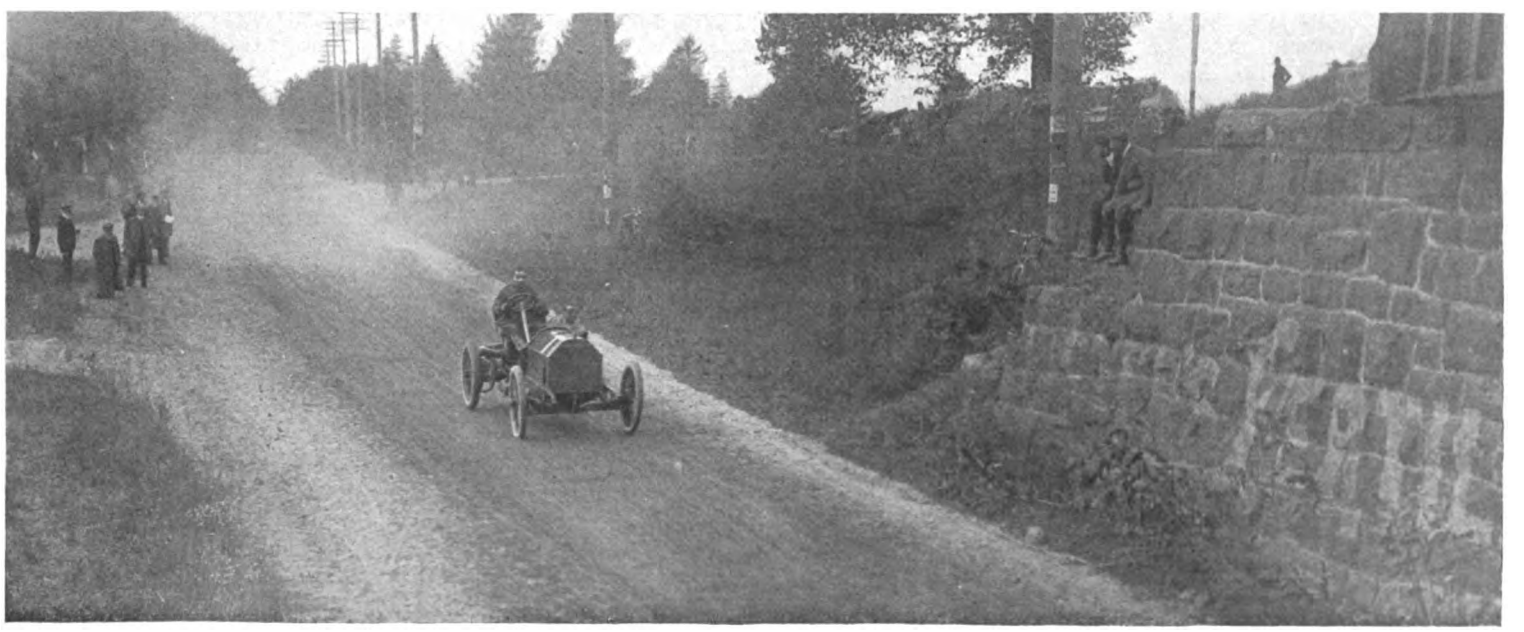


TRACY WITH HIS ROYAL TOURIST SWINGING ROUND THE RISKY QUEENS TURN

It was by an advantage of 1 min. 28 sec. that Heath took the cup.

Apprised of this fact, the people cared for no more racing, and oblivious of the fact that five cars were still encircling the

the first motor road race ever held in England—November 14, 1896, from London to Brighton—had just completed his ninth lap, after having done the most consistent traveling of the day with a 24-horsepower Pope-Toledo, plainly at a disadvantage



CAMPBELL WITH THE STEVENS MERCEDES PASSING UNDER THE RAILROAD VIADUCT ON THE JERICHO TURNPIKE

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M. TESTE, OF PARIS



BERNIN AND THE BROKAW RENAULT



WEBB AND THE POPE-TOLEDO

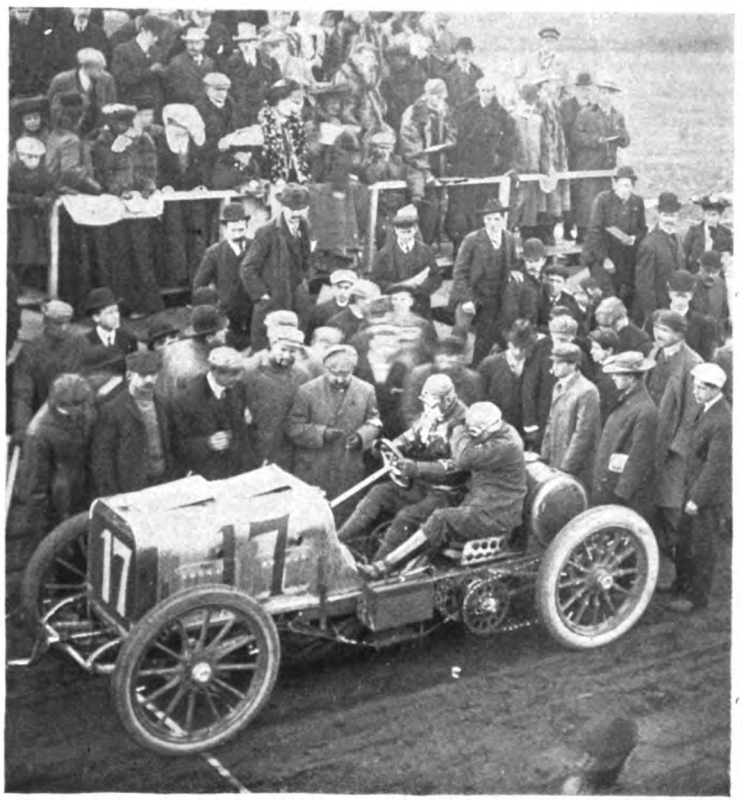


M. TART, OF PARIS

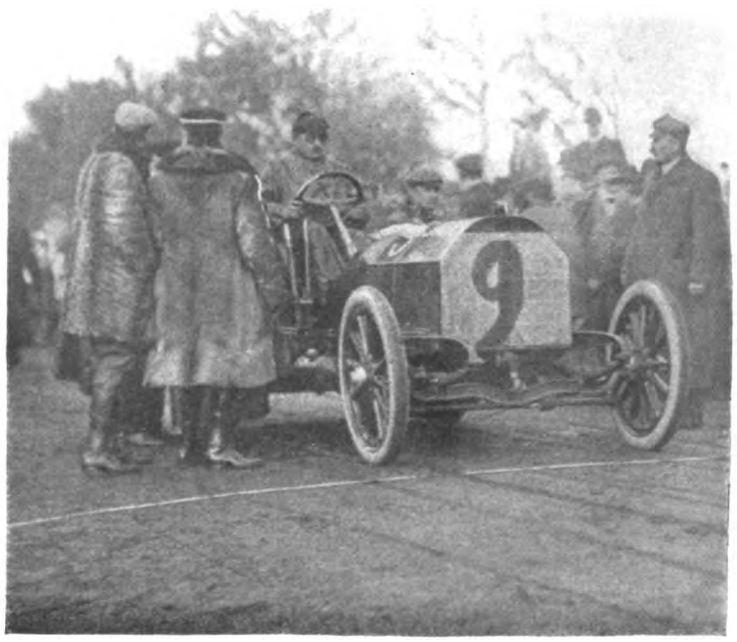
because of his lesser power. Schmidt and the Packard Wolf were another handicapped pair that had been performing admirably with only 30-horsepower, and had fourth place mortgaged. Campbell and the Stevens Mercedes had fifth place in

when the motor battle ended. These five were loath to quit.

If one is beaten soundly, he is inclined to accept it with equanimity. But Clement thought that an injustice had been done to him at the Hicksville control, and with the close call



FRANK CROKER (S. & M. SIMPLEX) WAITING FOR THE WORD

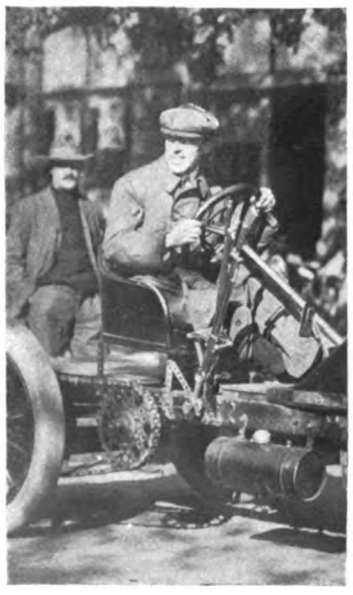


WERNER AND THE CLARENCE GRAY DINSMORE MERCEDES

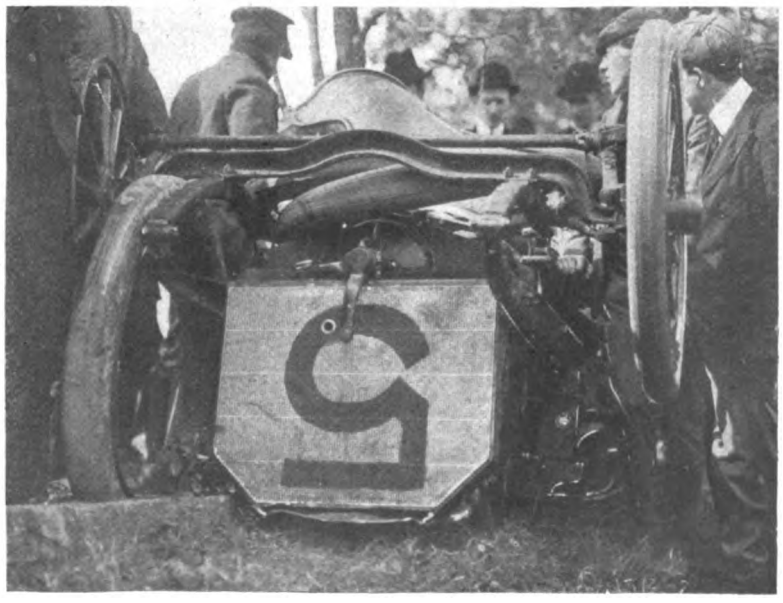
hand. Frank H. Croker, with his S. & M. Simplex, had all sorts of tire troubles, but was up and doing on his seventh round when the signal came to stop. Luttgen with the Wormser Mercedes had just completed his eighth round

of 1 min. 28 sec. vividly before him, he filed a vociferous wordy protest, later set forth in writing, which Referee Vanderbilt and his fellow-members of the commission for the 1904 race passed

(CONTINUED ON PAGE 60.)



ARENTS, THE UNLUCKY



THE TRAGEDY OF THE RACE



"NAPOLEON" WALLACE DOWNCAST

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Historic Sharon in the Berkshires



By C. L. Green

Sharon is a beautiful Connecticut village lying among the foothills of the Berkshires, situated on one of the long green terraces of the Taghkanick Range. Motoring is popular throughout this country; the roads are exceptionally fine, being broad, level, and hard. The tourist from Lenox and Stockbridge, and, in fact, from the southern part of Vermont and western part of Massachusetts, passes through Sharon on the route to New York City.

The scenery is magnificent here, bordering on the line of the grand and sublime. On the east, the Taghkanick Mountains lift themselves. To the south, these mountains and ridges billow away into plains. The vistas are exceedingly broad and beautiful, one can see for miles as he emerges from the mountains into the plains beyond.

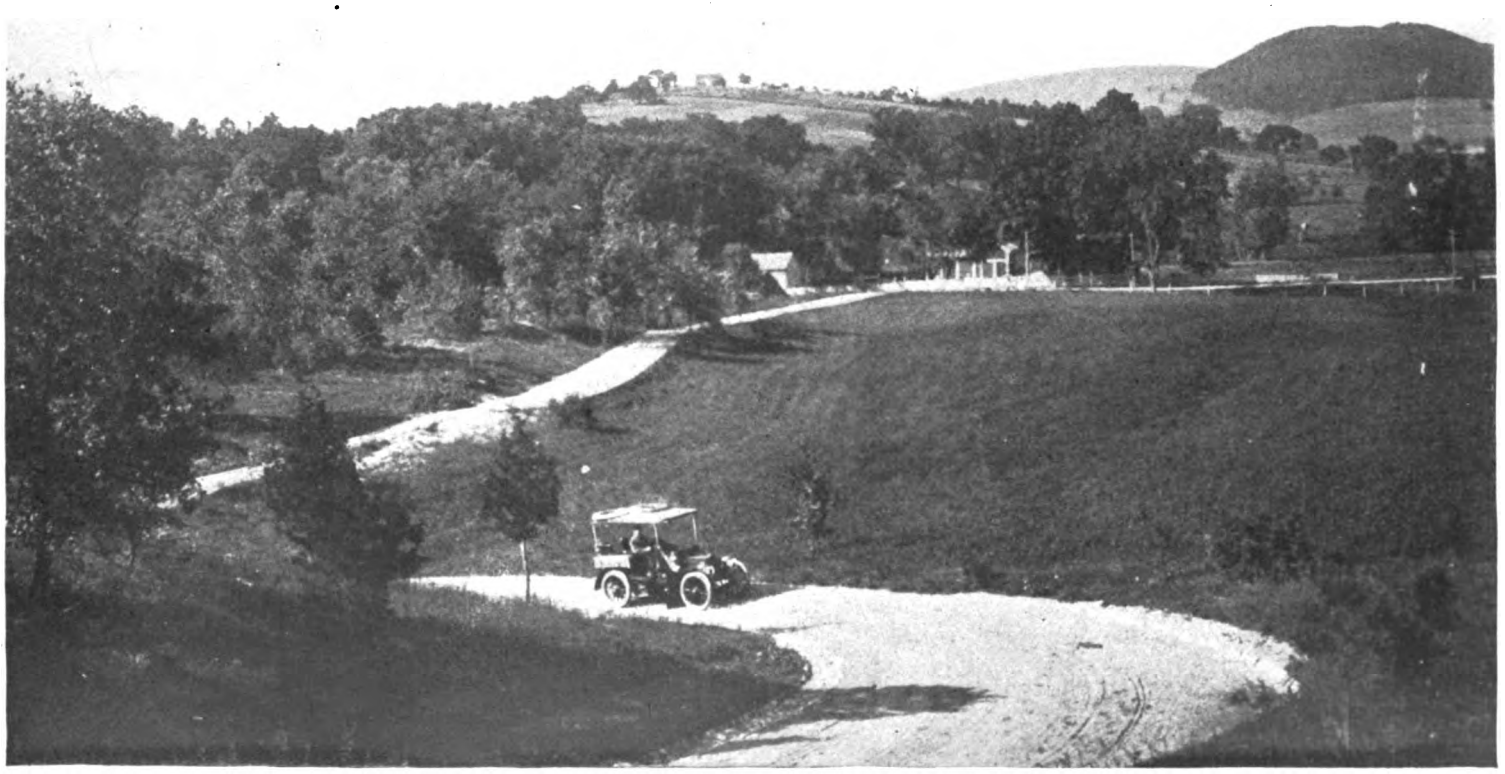
Sharon, itself, is one of the most picturesque villages of all New England. Its main street is one and one-half miles in length, and 225 feet in breadth. There are two driveways, an upper and a lower one. Whichever one the tourist may take, he passes beneath tall, stately elms, there being rows of these fine old trees running up and down the street. The proverbial New England "Village Green" is between the two driveways.

Tourists say it is the most varied and picturesque country throughout the whole run from Lenox to New York. Wide landscapes stretch away for miles, while here and there some old, tall and stately oak stands out in the open field alone.

Among these fields and along the base of the mountains, are beautiful little lakes. Evergreen groves running down the mountain side reach to the very waters of the lake, making a beautiful picture. There are some ten or twenty of the lakes round about.

The tourist passes slowly through this country, for like the sirens of old, the scenic beauty charms and fascinates. One can often see a touring car halted by the roadside among the pines, while the passengers are strolling here and there charmed with the beauty of the country. Not only is Sharon beautiful, but she is historic.

Nearly 200 years ago, the pioneer came this way and made a diplomatic war on the Indian who lived among these hills with his corn fields and hunting grounds. After some sixty years, the Indian left his wigwam on the lake shore, and took the trail through the forests in search of other hunting grounds where the trickery and treachery of the white man might not disturb the peace of his soul. The early settler then built his houses, churches, and schools. There are many old homesteads of the Colonial type, some 150 years old.



A TYPICAL SCENE IN THE PICTURESQUE BERKSHIRE COUNTRY

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WHERE THE GREEN HILLS MELT AWAY IN THE DISTANCE

Down the broad, beautiful street in Sharon where the motor car with its happy and gay passengers now whirls, General George Washington's army once passed with a large number of British and Hessian prisoners. Burgoyne's army had surrendered in the North, and in four divisions it was marched South. One division passed through Sharon and stopped over night in a meadow just off from the southern part of the street. The American officers were entertained in an old colonial home, where R. R. Colgate, an enthusiastic motorist, now resides.

Should the tourist care to go down through Sharon Valley, he would pass the ruins of the old factory where the first Hotchkiss shell was manufactured and the first Hotchkiss gun cast.

The Hotchkiss shell and gun were first used in the Civil War, and later sold to the French Government for $8,000,000. The Hotchkiss Co. is now building motor cars in France under the same name.

When our fathers laid out the plan of the good old town, and did their traveling the country round with oxen, they scarcely dreamed that some day big motor cars would be whirling through the streets of the town without any perceptible power, at the rate of thirty to forty miles per hour; but such is the case. There are several cars around Sharon, and their owners all enjoy the good roads, the fine view, and the mountain air. The environments make one younger in the Berkshire country.

People visit Sharon from all over the country, lovers of mountain scenery, of the forest, of the wild wood, and of the lake. Men from various professions of life seek rest and enjoyment among Sharon hills and along the banks of the Webotuck River, which winds its way through her meadow lands. The great houses of the broad, beautiful street are owned by these men, some of whom are enthusiastic motorists, and have, by their considerate conduct in handling the cars, made this sport popular in Sharon.

To see these big machines whirling down the street, crossing

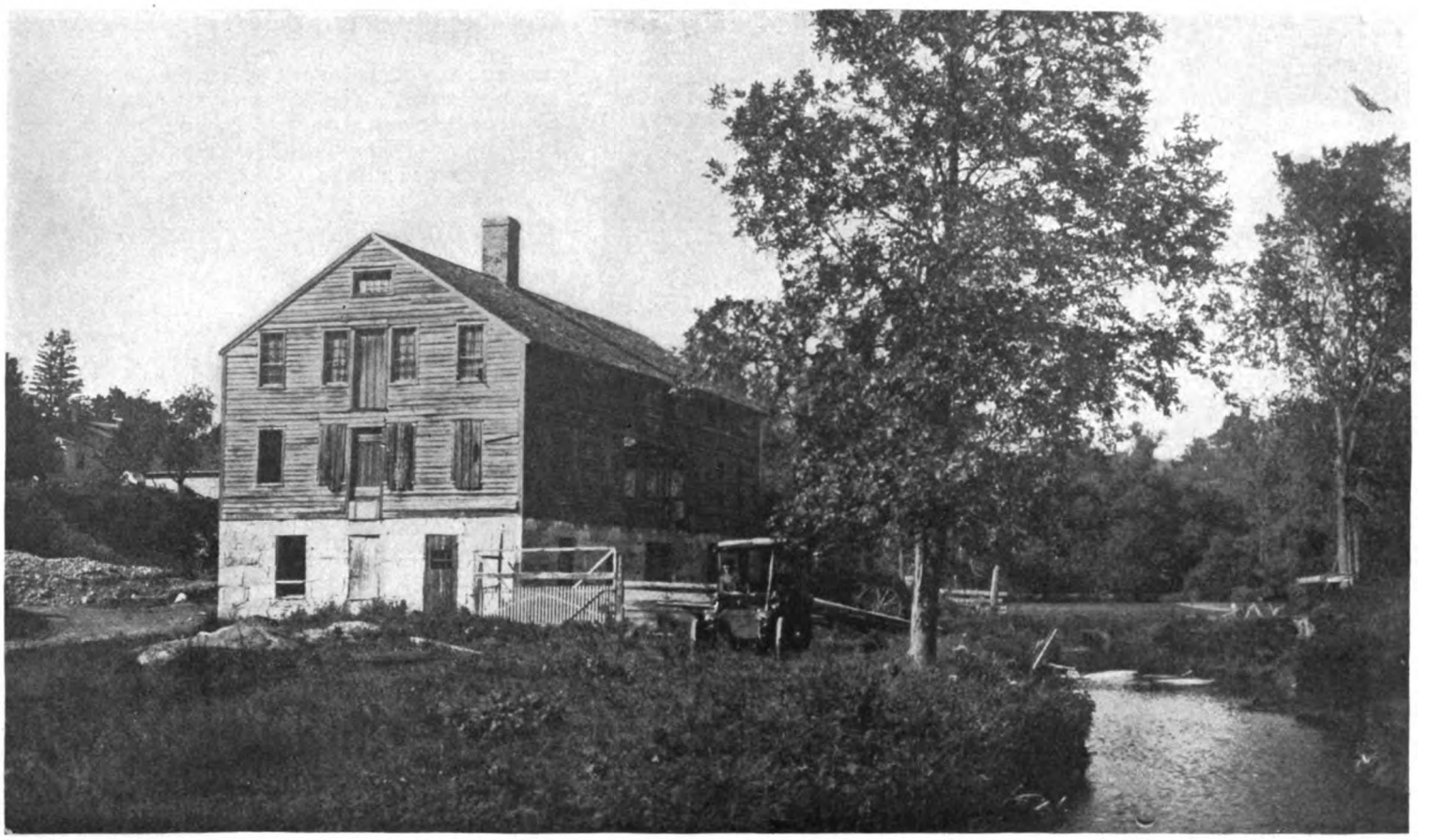


THE OLD SMITH MANSION, WHERE GEORGE WASHINGTON ONCE SLEPT, NOW OWNED BY R. R. COLGATE



WHERE THE FIRST HOTCHKISS SHELL AND GUN WERE MADE

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THIS WAS THE FIRST BUILDING OF THE ORIGINAL HOTCHKISS FACTORY

meadow and plain, circling hill and climbing mountain is a joy to one who loves to live in the twentieth century. When Sharon and her surroundings become better known, her roads will be used more extensively and other tourists will journey to these parts in order to see what God has done for Sharon in the way of scenic beauty and Nature's wealth.

One cannot obtain a better idea of country life than by motor car journeys—on which a stop for the night can be made wherever fancy dictates, and New England has innumerable inns that abound in comfort and cleanliness.

HAWLEYTOWN'S PROUD BOAST

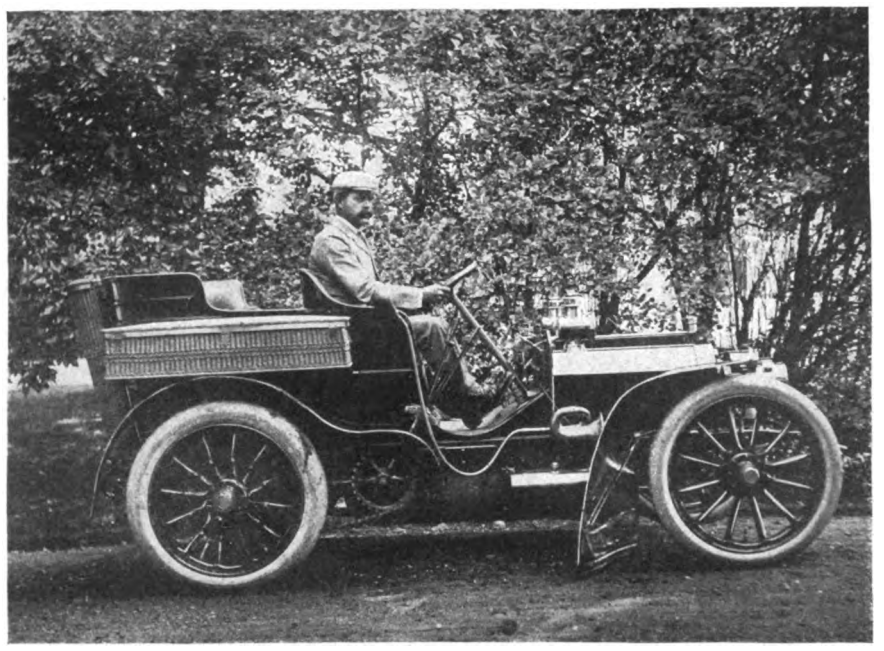
By Fred E. Dayton

It was a new motor car, powerful, costly, gaudy in flamboyant colors, luxurious in appointments and capable in performance. It had recently been imported. When it was run into Hawleytown, inland, poor and uninteresting, the natives, uncouth in mechanics, looked upon it through eyes they levelled



SHARON'S MAIN STREET IS RESTFUL AND INVITING—THE VILLAGE INN AND TOWN CLOCK

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R. R. COLGATE AND HIS MERCEDES

on the bills posted on nearby barns, lithographed in fifteen colors, heralding the coming of the greatest show on earth; and they marveled.

When it was known that Peter Paff, the brewer, had become its proud owner, the debate on which wheels of a buggy left the ground in turning a corner fast, a question that had been argued pro and con, and mostly "con" for two years, was forgotten. Hawleytown possessed a brand new and live sensation. It ranked above the less fortune-favored cities of the commonwealth.

This is the way the ownership of a $10,000 imported motor car impressed the editor of the Hawleytown *Banner of Truth:*

"Our fellow townsman, Peter Paff, the Duck Creek road brewer, sprung a sensation on Hawleytown just as we were going to press last week, when he brought into town, in charge of a French chauffeur, a big, new motor car, supposed to have cost $10,000.

"We were endeavoring to print a description of the motor car last week, but on account of a large advertisement for Dr. White's Nervena, and the fact that our compositor, Mary Shailer, was absent two days at the Cherry Park cattle show, we were unable to do so. However, we will give more space this week to it.

"In general conformation Mr. Paff's motor car resembles the steam calliope of Otis Turner's big one-ring circus, It is painted red and white like Lige Tucker's barber's pole. Mr. Paff's new hired man, who runs it, says it goes by gasoline and has a four-cylinder jump spark motor. It steers with a wheel like a boat, only the wheel is turned the other way, and the cushions are upholstered the same as those in Capt. Tucker's Memorial Church, except that they are of leather. With his accustomed generosity Mr. Paff invited the scribe to a ride in the machine to Painted Post, which we accepted with much pleasure. The only incident to mar the outing was the scaring of Mrs. Daniel Sackett's horse, as she was driving out of her yard on Whig Hill, though it seemed to us that Mrs. Sackett was the most scared of the two. No damage was done except the breaking of a trace on the harness, which was old anyway, and for which Mr. Paff paid out of a generously filled wallet.

"Painted Post was out in force to admire Mr. Paff's motor car, and was actually green with envy that such a machine was not owned in their town, and we assume that Hawleytown can rest on its laurels even if our neighbors are proud of a new reel hose carriage. We congratulate Hawleytown on having such a fine vehicle and feel for Painted Post in her shame.

"Mr. Paff's advertisement will be observed on another page."

THE N. A. A. M. ST. LOUIS EXHIBIT

Through the medium of a collective exhibit of the product of its members at the St. Louis Exposition, the National Association of Automobile Manufacturers furnished to the world an interesting and valuable lesson in the advantages of cooperation and demonstrated not only the possibility of making a complete exhibit of an industry under one management, but of making it attractive to the visitor, profitable to the individual exhibitor, and far more creditable than is usual, to the exposition management.

Of the 50,000 square feet available which the exposition management gave to the national association, the allotment was made without a sign of friction and not a single member complained, at the time, or has complained since, relative to this feature, or, indeed, of any other, of the work.

Not only was the preparation of the space undertaken by the association, but its maintenance as well. Although a majority of the exhibitors have representatives in attendance many have left matters entirely in the hands of the association's resident manager, R. W. Slusser.

No sooner were the decorations in place than they were visited by decorators and exhibitors from all parts of the grounds, and admiration was generally expressed.



VALLEY BROOK ON THE COLGATE ESTATE



EMERGING FROM THE DEPTHS OF THE COOL FOREST

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PARIS, Oct. 20.—When Mme. du Gast is "billed" to appear on the program of a water race meeting of any description the public prepares to furnish a large and enthusiastic attendance. Thus, at Juvisy, on the other Sunday, although the auto boat contests had not been particularly well advertised, and although, for the convenience of the Parisian public, going out to Juvisy is about the same as going to Flushing for Manhattanites, the banks of the grand old Seine were occupied by enormous crowds. It was the record attendance thus far at any auto boat event, even though the contests were of much less importance than some that had preceded.

Mme. du Gast is the daughter-in-law of Mme. Crespin, whose husband started the small shop which has grown into the enormous department store known as the Magasins Dufayel. In the beginning, Mr. Dufayel was a very modest employé of the stable of Mr. Bernheim, who furnished the six or seven horses for the delivery department of the store in question, and it is said that Mme. Crespin was one day so pleased with the appearance of the young man that she became instrumental in his being accepted as a clerk.

M. Dufayel made very rapid progress. Perhaps he was boosted a little, and at the same time he was a smarter man than the ordinary young "calico." Mme. Crespin and M. Dufayel became very good friends.

Finally M. Crespin died, and also finally M. Dufayel became a partner in the firm, although which of these two circumstances occurred first I don't know, and it doesn't make any great difference anyhow. M. Dufayel and Mme. Crespin continued on the very best of terms. Again finally, Mme. Crespin ceded the entire establishment to M. Dufayel, and at present M. Dufayel is the proprietor of one of the finest retail stores in the world and is a very rich man. His new residence in the Champs Elysées, now being built on the site of the former residence of the Duchesse d'Uzès, will be the most expensive in Paris, representing an outlay of certainly more than 6,000,000 francs.

Well, returning from this parenthetical insert on Parisian history to the main subject, it will be remembered that Mme. du Gast (Crespin du Gast) tendered her entry for the French eliminatory race for the Gordon Bennett cup race, and that the same was refused by the Automobile Club committee. Mme. du Gast insisted, as was her right from a literal point of view, as there was no rule defining the sex of the contestants, but the committee acted as though it had a heart like an army biscuit.

As far as the races at Juvisy are concerned, Mme. du Gast didn't win first place in the contests, but she won the admiration of the crowd. The only moments when she was not surrounded like a bookmaker was when she was in her boat on the water.

Of "her class," the Rapée (Panhard motor), owned by M. Tellier, was first in the 100 kilometre race, the time being 2 h. 17 min. 12 3-5 sec. The Titan II (Delahaye), owned by



MME. DU GAST, WHO IS AN ADEPT AT MOTORING AFLOAT AS WELL AS ON SHORE

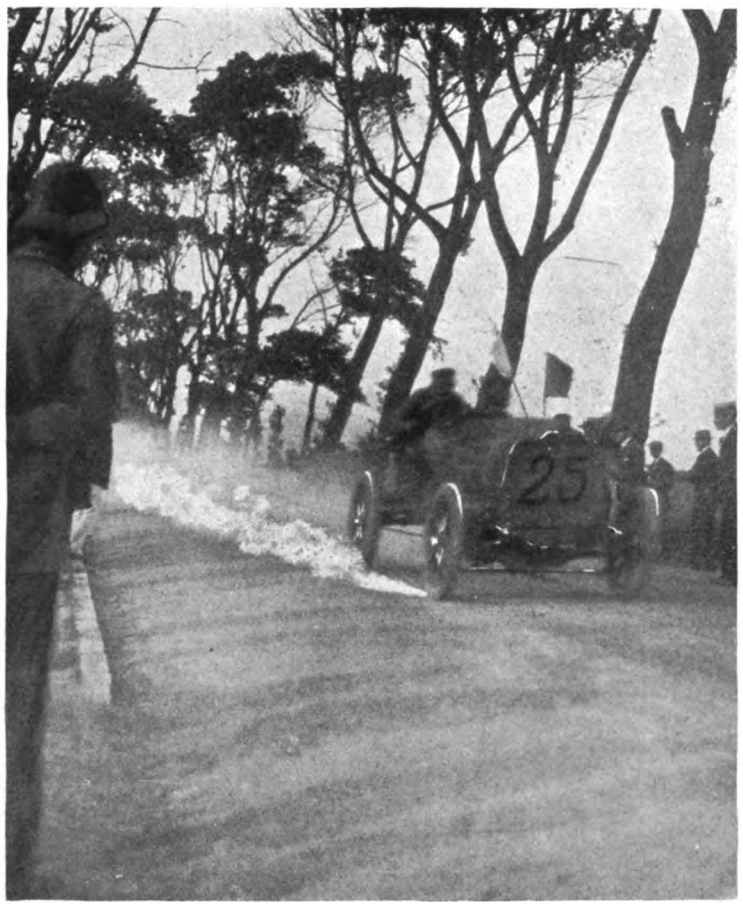
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M. Mestayer, was second, the Titan (Delahaye), owned by M. Blandeau, was third, and the Marsouin (Darracq), driven by Mme. du Gast, was fourth.

Mme. du Gast's time was 3 h. 56 min. It was kind of her to run along in a leisurely manner, as it gave the people a better opportunity of looking at her and her craft.

In the "big class," the Trèfle-à-Quatre (Richard-Brasier), owned by M. Thubron, beat the N'a-pas-Pied (Napier), owned by M. Kapferer. Neither the famous Mercedes IV nor the champion Hotchkiss was entered in these contests.

While I am on the subject of auto boats, I might say that, in the opinion of the majority of experts in Paris, the proposed crossing of the Atlantic by means of an ordinary twenty or thirty-foot boat, driven by an ordinary pétrol motor and carrying its own supply of pétrol, is not in danger of accomplishment before the next students' ball in the Latin quarter.



BARAS AND HIS WINNING DARRACQ AT OSTEND

The French Academy, the most learned body of men in the world outside the University of Kansas, frequently has to decide some very difficult questions. Some time ago it was called upon to pronounce upon the gender of "automobile." If I remember correctly, it decided that "automobile" was masculine, and accordingly it would be necessary to say "un automobile," and not "une automobile." The French public, however, proceeding with its usual independence, held that an automobile was a "she," and a "she" it has been ever since.

Now the Academy is wrestling with the question of what is a suitable name for an auto boat. Granted, first, that the subject is masculine, as it seems to have been thus generally accepted contrary to the precious old custom of saying in a learned and swagger manner, for instance, "The good ship Monkey Princess, she set her jib topsail and braved the gale with her scuppers in the sea," the matter of nomenclature is before the meeting.

M. Ludovic Halévy, one of the members of the Academy, proposes "Motoscaphe." M. de Vogué says "Autonef," M. Hanotaux is for "Autocanot," M. de Herédia favors "Autoscaphe," M. Berthelot insists on "Canot Automobile," M. Jules Clarette's choice is "Canot-à-Pétrole," while M. le Marquis Costa de Beauregard is for "Autoracer."

It has become clear to the motorists that for mile and kilometre dashes, the straightaway stretch in Belgium, between Snaeskerke and Ostend, is the best selected or discovered thus far in Europe. The *Velo's* annual race meeting on the Dourdan-St. Arnoult route, which took place on October 2, while being very successful and productive of speed, comparatively speaking, the experts there assembled were forced to admit that the Ostend course was the more advantageous, for the reason that the surface is better and the approach is longer.

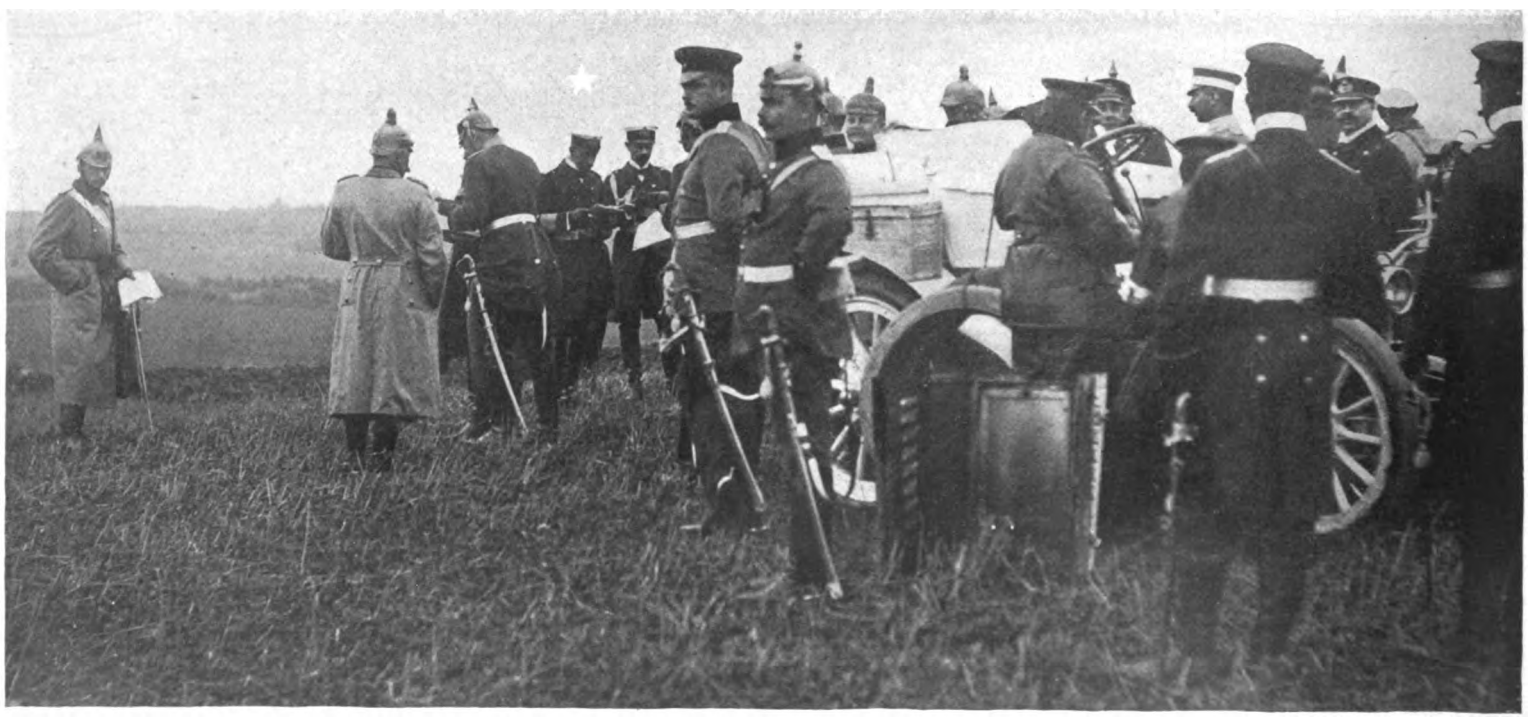
As usual a big crowd went out to see the standing mile and flying kilomètre contests on the Dourdan route. This course is flanked by trees, and at the same time is not very wide, so that the effect of the rains of the previous days was still evident. The route was a trifle slippery, but not dangerous.

The record-breaking honors went to the motocyclettes. Lanfranchi, with a Peugeot machine, covered the mile, standing start, in 57 4-5, as against the previous record of 59 2-5, made in Belgium by Olieslagers. In the flying kilomètre contest, Lanfranchi's time was 29 1-5, showing a speed of 123.294 kilometres an hour. The weight of the machine in these two instances is under 50 kilograms (110 pounds).

In the class for heavy autos, Baras drove a Darracq a flying kilometre in 25 1-5. Rigolly's world's record of 21 1-5, as may be seen, was not in danger. The Darracq also won in the light auto and voiturette classes.

In the various classes (according to prices) of the mile contest for touring machines, the Créanche, Boyer, Gardner-Serpollet, Mercedes and Radia machines were the winners.

In the racing classes, for the mile, the Darracq was first of the voiturettes, light autos and heavy autos.



AT THE GERMAN ARMY MANEUVERS—PRINCE HENRY UNDERNEATH THE STAR

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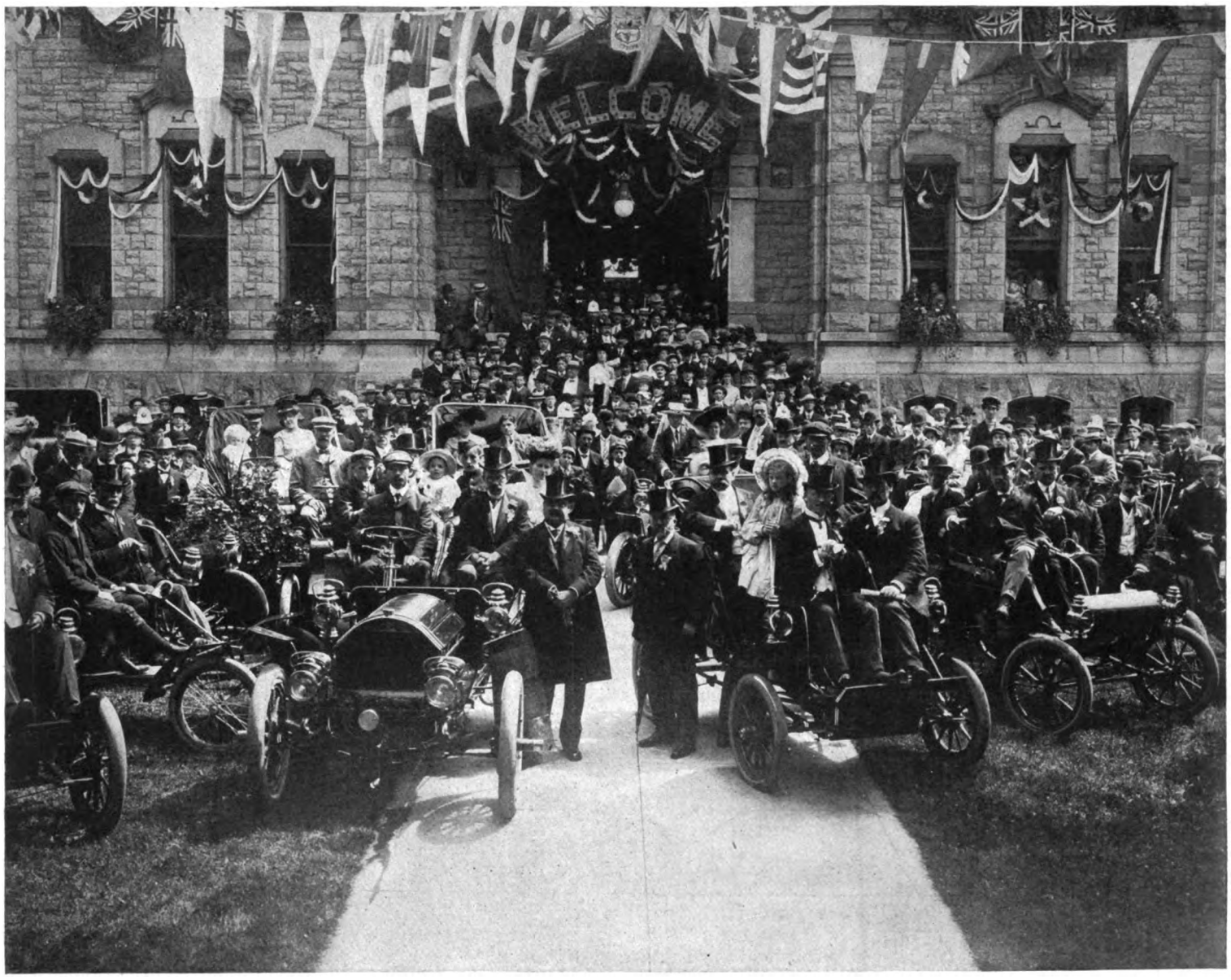
CANADA'S GROWING INTEREST IN MOTORING

By Robert Bruce

Though not so quick to take up a new sport or a new means of transportation as their neighbors on the lower side of the international boundary, the people of Canada nevertheless are becoming gradually acquainted with the motor car and its possibilities. It hardly can be said as yet that there is a thoroughgoing popular interest in the subject through the different provinces, but there are in Toronto, Montreal, Ottawa, London and Winnipeg, at least, small companies of enthusiastic motorists who have taken it up with good spirit and are now doing the pioneer work that must be done in any country. During the summer and fall of 1904, there was at least one motorists' function in each of these cities, of a character to show the local progress of the sport. A beginning has been made, too, in old Quebec, in New Brunswick, Nova Scotia, and even in Vancouver, B. C., on the Pacific side.

Then, of course, there is the international boundary to be crossed, with all its reported bother about passing customs both going and returning. But this is not one-quarter as bad as usually supposed by those who never have had occasion to take a motor car back and forth. Of course one is stopped at the border, and is required to make some small cash deposit, as well as to give a bond for from one-third to one-half of the estimated value of the machine. As things are today this is a highly convenient arrangement, for should one pass from the United States into Canada as from one State into another, his troubles would be multiplied many-fold when the time came to return home.

This is due to the different methods of the two governments. The people of Canada, including most of the officials, make it a sort of policy to encourage all classes of tourist travel,



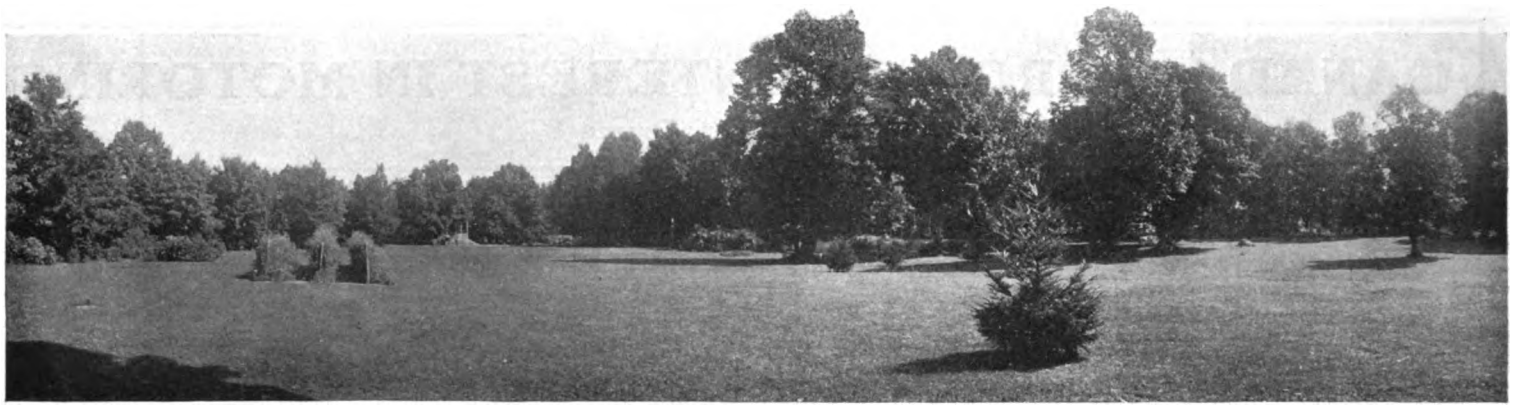
IN FRONT OF THE CITY HALL AT OTTAWA, CANADA—A DOMINION-DAY CELEBRATION IN WHICH MOTORISTS WERE PROMINENT

In the course of perhaps three or four years more the popular idea of Canada in general and of the Province of Ontario in particular, as a touring ground for motorists from the United States, is certain to undergo a decided change. To many, even some who now think nothing of trips to the Shenandoah Valley, the Thousand Islands, or the White Mountains, Canada seems a long way off. As a matter of fact, Toronto is no farther from Buffalo and Niagara Falls than Philadelphia is from New York—an easy day's journey. Montreal, Quebec, and Ottawa are all nearer New York City than is Erie, Pa.; they are all nearer Boston than is Baltimore. The less familiar geography and the consciousness of going into another country give an exaggerated idea of the distance. A little study of an accurate-scale map will help to revise one's idea of these matters.

the national revenue from this source being several millions of dollars a year. Consequently they are as liberal as a reasonable interpretation of the law of the country will allow. Uncle Sam apparently pays no attention to bona fide tourist travel from Canada, and besides he always has had about as strict ideas on the subject as could be made to the special order of a medieval tyrant. His uniformed representatives at the border would keep back a motor car until doomsday unless sooner convinced beyond peradventure that it belonged on this side of the line, or paid the stated duty. Coming back into one's own country—whether the thought be humiliating or not—is invariably three-quarters of the bother and red tape of the round trip.

The best passport any machine possibly can have is the manifest made out in duplicate at the time and place of entry. This

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A SPECIMEN OF CANADIAN LANDSCAPE GARDENING—MOTOR PARTY JUST VISIBLE IN THE DISTANCE

fully and immediately identifies the car, securing a cancellation of the bond and the immediate return of the deposit made. Even if this manifest should be lost, a duplicate may be had by return mail from the office where the entry was made.

At the opening of the 1905 touring season, MOTOR will illustrate further the matter of passing the United States and Canadian customs with motor cars, including any new regulations that may be in force up to that time.

Possible tours in the Province of Ontario alone are practically without number; nor are they surpassed in variety by those of any other equal extent of country on the western hemisphere. And in considering the matter of "equal extent," it is to be borne in mind that Ontario is larger in area than all Spain and nearly as large as France or the German Empire, while Sweden, Denmark, and Belgium combined would about equal it. Cross the Detroit River from Detroit to Windsor, or the St. Clair River at Port Huron or below, and you are at once in Ontario. So you are when in Ottawa, the Canadian capital, fully six hundred road miles away. Likewise, if you make a trip from Toronto to Gravenhurst, in the heart of the Muskoka region, or ride around beautiful Lake Simcoe.

Lay out a tour west from Montreal along the River St. Lawrence, and before you go sixty miles you cross the inter-provincial line out of Quebec and are over in Ontario. If the more venturesome tourist of the future will ship his motor car from Buffalo, Detroit, or Chicago to some port on the north shore of Lake Superior by the successors of the present "Northwest" and "Northland," and travel overland to the Lake-of-the-Woods region, or to the Lake Nepigon district, he will reach them over the roads of the same province. Ontario could make room for a straight line as long as from New York City to St. Paul; among the States of the American Union, only Texas exceeds it in area.

Nearly every place of importance in Canada, too, is a possible starting point for some interesting side tour. The typical crossroad in Ontario strikes out boldly for itself, few or many miles (as the opportunity or urgency for its construction might have been), into the country round about. Thus has been opened up to settlement and tourist travel alike many a portion of the Dominion, surprisingly large in extent, possessed of at least a fair measure of topographical individuality, and teeming with recreative possibilities. Hunting, shooting, fishing, canoeing, and kindred sports hold sway throughout Canada in their seasons, nowadays combine in a very convenient way with the younger sport of motoring.

The roads of the provinces average fairly good—fully equal to those of the adjacent sections on the American side, and at times far superior. Hard stretches are part of all crosswise tours on either side of the line, as they must remain for many years to come. Considerable swamp-land is traversed in some districts, but raised roads, and substantial culverts and bridges usually safeguard the travel over it. There is some sand in middle Ontario. The lower peninsula, while not a level country, is not what the native New Englander or the Pennsylvanian would call "hilly"; it is rather undulating—an easy succession of upgrades and downgrades, so agreeable on extended tours as to be preferred before either dead levels or successions of hard climbs and steep descents. It is a sort of happy medium between the prairies of Illinois and the mountains of Colorado, with a wealth of marine scenery unknown to either of these States.

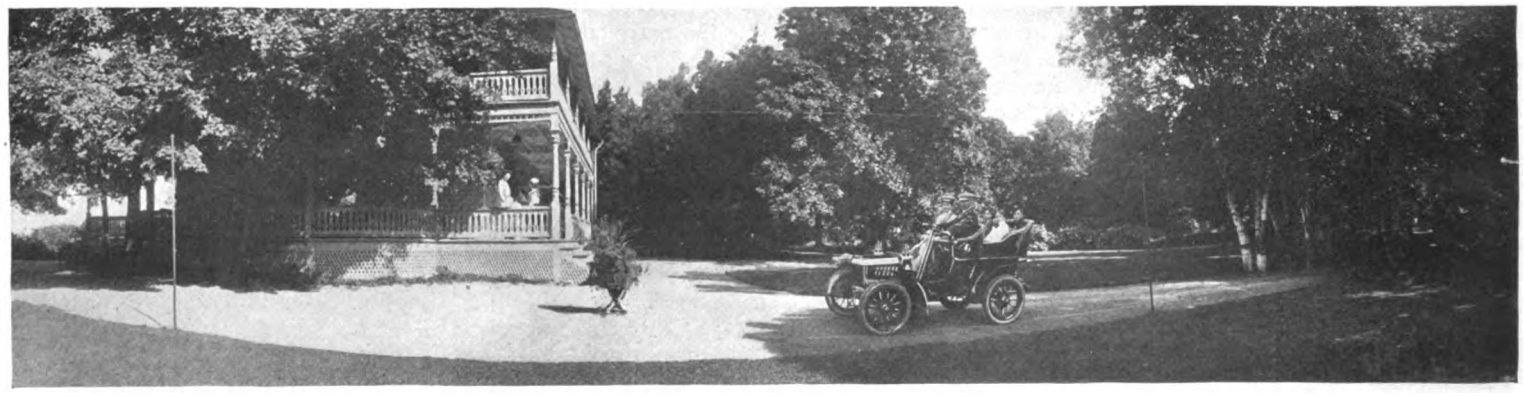
From the eighth annual report of the provincial Commissioner of Highways, Mr. A. W. Campbell, we learn that up to the end of 1903 about one hundred and thirty townships in Ontario had abolished or commuted statute labor on the roads, and in its place (with more or less modification), had adopted new systems, whereby fewer and more permanently appointed overseers take the place of the pathmasters of the old régime, and by which all road work is paid for in a businesslike way. Proper roadmaking machinery is employed to a greater extent than in the past, while definite methods of doing the work have been established, and, altogether, new life infused into highway improvement wherever the new plans have been adopted. The outlook for the future is more encouraging than ever before.

The tourist who may have "done" the St. Lawrence River towns and cities, or have made some excursions around Quebec, Montreal, or Toronto, might be pardoned for imagining that the upper limits of motoring had been reached at these places. Not so; the Canadian capital, with its beautiful environs and its small but enthusiastic company of motorists, is between you and the final wilderness. Ottawa, too, though only the fourth city in Canada in point of population, is an important place from which to observe the status and progress of motoring throughout the Dominion.

This city is superbly situated on a high bluff at the confluence of the Ottawa, the Rideau, and Gatineau rivers, the former the interprovincial boundary. It has the individual distinction of being the political headquarters of the Dominion, where the Parliament assembles, where the Governor-General and all the ministers reside, and where the machinery of the Government is centered. The "Hub of the Great Wheel of Confederation" is visited annually by a great many tourists; it has the air of progressiveness, and a resolute activity is noticed on every hand. A five minutes' ride along the principal thoroughfare—Sparks Street—say from the Canada Atlantic station or the nearby post office to Bank Street, where the principal automobile agencies are located—will convince any one of the substantial character of almost everything in Ottawa.

From 1867, the year of Confederation, until 1887, the growth of the capital city was slow and steady, but since that time it

(CONTINUED ON PAGE 70.)



WARREN Y. SOPER'S HOME, "LORNADO," ROCKCLIFFE PARK, OTTAWA

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From whatever point of view one looks at the subject, there is no portion of the continent of Europe of such paramount interest to the American as the Netherlands, and this is true whether one compares their similarities or their differences, their historical or geographical characteristics. Especially in this historical relation is this country, beyond compare, in affinity with the United States. It is so in a double sense. In the first place, it is the birthplace of that republican form of government in which separate commonwealths are united in a federal bond; and it was the camp of refuge to which the persecuted sectarians of even comparatively liberal England fled, and out of which they came to our shores, the "Pilgrim Fathers," in the Speedwell and Mayflower.

Two hundred years before the American Colonials asserted their right from foreign dominance at Bunker Hill and Valley Forge and Lexington and Long Island and many another field, the Burghers of the Low Countries grappled with Spain by sea and land, and won their civil and religious freedom: at what cost the pages of history, and their city walls attest. Every inch of its soil, from the borders of the Zuyder Zee to Southern Flanders, is sacred with the blood of the martyrs, who were the seed of the movement of which the United States of American are the perfected fruit.

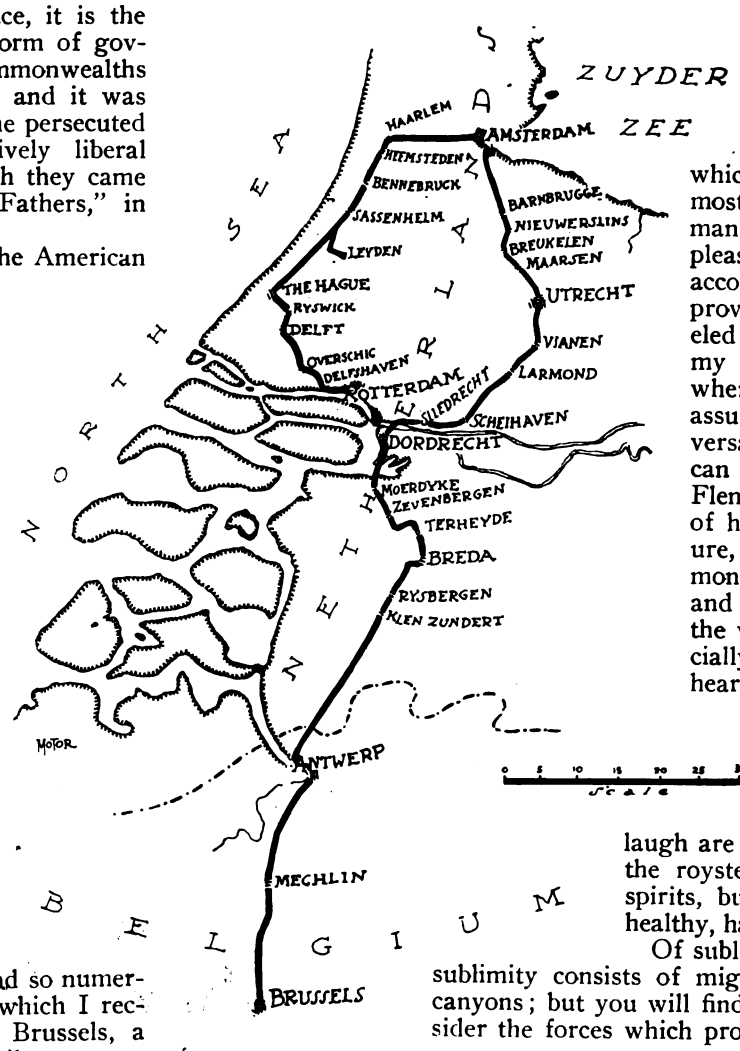
But apart entirely from its historical association, it has claims for the motorist equally preponderating; its roads are absolutely flat and mostly of brick, its towns are architectually of the greatest beauty, and so numerous that in one route, the one which I recommend, from Rotterdam to Brussels, a spin of some two hundred miles, there are twelve of them, the very enumeration of which is as familiar to our ears as household words. Rotterdam, Delft, The Hague, Leyden, Harlem, Amsterdam, Utrecht, Dort, Breda, Antwerp, Mechlin, and Brussels: and these only the larger ones. Of quaint villages by the way there are many scores. Thirty-five, as I once counted them, can be seen from Utrecht alone.

Nor does aesthetical sentiment of kinship in political aspiration, and the richness of its architecture, stand alone among the claims of Holland and Belgium. Its art galleries are, by themselves, enough to repay a longer journey than that which I have outlined: for they are the homes of the painters of humanity: the founders of the healthy school of landscape and animal depiction, and of incidents of daily life, as contradistinguished from the Italian school, which devoted itself, and spent its highest efforts, in the legends of the saints. Here by the thousand are the masterpieces of Rubens and Rembrandt, Van Dyke, and Paul Potter, Jan Steen and Gerard Dow, Franz Hals, and Van der Helst, Quentin Mastys and Holbein.

But, after all, it is the land and the people which interest the ordinary travelers especially when they taboo the railroad and revert to those old highways, along the lines of which the old country was built up. And here let me testify against the heresy which the wits of the world have done most to promulgate, that the Dutchman is phlegmatic, that he takes his pleasure sadly, even more sadly than according to the French wit does the proverbial Englishman. I have traveled in many lands, and mostly with my knapsack on my back, and know whereof I write, and I can say, with assurance, that no people, not even the versatile and impulsive Frenchman, can compare with the Hollander and Fleming for outward and visible signs of happiness. Given an hour of leisure, no people are so readily and demonstratively happy. See them, male and female, on summer nights, when the weather does not lend itself especially to hilarity, and you will see and hear a people who sing and dance, in the public streets, as if the world contained no past of toil, and no future of care; and far into the night the innocent revel and the social laugh are heard in all the great cities. Not the roystering of inflamed and inebriated spirits, but the pure ebullition of hearty, healthy, happiness.

Of sublime scenery you will find none, if sublimity consists of mighty mountains and deep scarred canyons; but you will find greater wonder, if you but consider the forces which produced it. Nature created but an estuary of sand, the mere debris of other lands, brought down on the flood, or cast up by the ocean: a wilderness of barren tidal swamps, more desolate and useless than the far delta of the Mississippi, a country of ground-up pebbles and water, with the water originally on top. Man has made it a country; man has chained the winds of heaven and anchored the waters; man by his ceaseless labor, through centuries, has fought back the angry sea, and curbed the swollen flood, man has converted this wilderness of the sea gull and of barren wastes, into a flowering Eden; and on it maintains a population proportionately greater, and in physical condition, clothed, fed, and housed and educated, in no way inferior to that of the most bountifully favored regions of the United States.

Nor are its landscapes devoid of a beauty all its own, over its flat surface floats an atmosphere capa-





VOLUNDAM, A TYPICAL HOLLAND VILLAGE

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THE TOWER IN THE MARKET PLACE AT AMSTERDAM

ble of rendering most wonderful effects. Lie upon the shaded banks of its river ports some evening at sunset, when the tide turns inwards, and see its multitude of craft of every form and color unfold their sails and float away up their golden-bathed pathway, and you will have spread before you a feast of color such as is given to few places to impart: or note where the draw-bridge compels a congregation of boats, and you will see such a mirror of the reflective power of water, such a glory of rippleless colors as never entered into the mind of artist to conceive; or watch the outline of the distant spires darken, and lose their details, in the glittering-gray of the falling night, whilst the silvery tones of chimes float down the evening breeze, and you will have seen another version of "a thing of beauty."

Even the lesser details have a character all their own. You will glide through mile upon mile of pasture dotted with countless multitudes of Holland's pride, its shapely oxen, black and white, black and white, and ever black and white to the thousandth, and the ten thousandth. Indeed all animated nature on this green carpet is flecked with black and white. The ox is black and white, the farmer's black clothes are relieved by his white wooden shoes and his spotless white shirt, his dog is black and white, his pigs are black and white, his goats, his cocks and hens, his rabbits, even the birds of the air join in the symphony; the skimming swallow, spreading his tail on the turn, and showing his breast as he rises, is black and white; so are the pewits on lazy wing, whilst the never-absent wagtail flicks his restless plumage in the black and white unison. 'Tis the women who here, as everywhere, give the touches of color which light up the picture, and very quaint and very picturesque they are in kirtle, and headdress of burnished gold.

But we are putting the cart before the horse: we have not yet landed! We shall approach Rotterdam, whether we go straight across from New York, or from Harwich in England, up the estuary of the Maas, passing as we go up the river now a spice-laden merchantman toiling in from Java; then a dusky coal ship from the Tyne, here an East Indian with rice, and there a Christina bark laden with sweet-scented pine. Our quay will be, if we come via Harwich, on the river front of the pleasant outskirts of the town, bordered by a city park, or across the river, higher up, amidst regiments of river steamers, gay with color, from all parts of its hundred waterways. And in order that we may not miss it, as an unconsidered corner, we will, before crossing into the city, turn a mile away back by the first road we come to, and visit that so unaccountably little-visited spot, at least by Americans, Delfthaven, a little inlet between two mills on the Maas bank, whence the sturdy Speedwell sailed with the "Pilgrim Fathers" in the never-to-be-forgotten 1620. Here are the very steps they trod as they passed on board, the same low coped wall on which they lingered, and in the church opposite we can see through the open door, the pulpit from which good Pastor Robinson preached the last exhortation ere they sailed to join the Mayflower at Plymouth, and so across the Atlantic. Delft is usually spoken of as the port of embarcation even by such renowned guides at Murray's, but Delft is not a port! They came down through that city the night before, and sailed from this quaint, delightful little village port, Delfthaven, in which scarce a stone has been altered since.

Back into the town is but a stone's throw for a motorist, up the West Zeedyk, literally a dike to keep out the sea, and on its top, and over the Haven Bridge, the water Broadway of Rotterdam's traffic, on which are moored serried rows of broad-sterned craft, whose titles are the nomenclatures of hundreds of miles of the Rhine; packed to the water's edge with the fragrant hay of half the countryside, with rye from the Baltic, which near-by Suhiedam will convert into "schnapps," with oak billets from the Black Forest, and with other merchandise as various as its destinations are numerous. There is much to see in Rotterdam, but I would advise the travelers to discard their motor cars in all towns like it, riddled and grid-ironed with canals and drawbridges, besides the quaintest corners and combinations of water, trees, boats, and people disclose themselves often only to the quiet lounger in unheralded places. An ordinary guide book will direct you to its galleries



THE TYPICALLY DUTCH AND REPOSEFUL HAGUE

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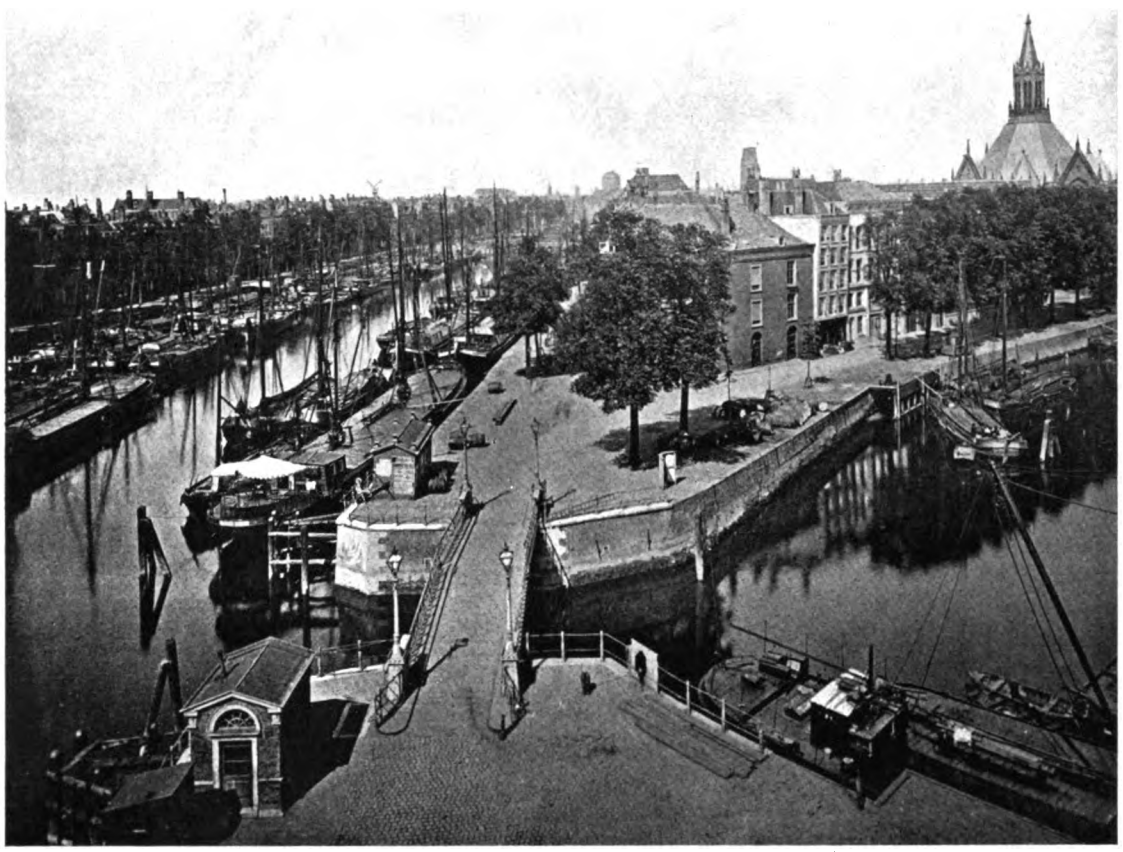
and museums, which never should be missed. Its churchs, unlike those to the south, are seldom worth special trouble.

The exit from the city for Delft is, naturally, by Delftsche Port, the last of the watergates of the city left, and alongside the Schie, through Overskie and thence onwards, with a slight deviation parallel to it on nearing the towns. This is a typical bit of Dutch country, pastoral and canal threaded, and dotted with mills, devoted to various purposes, from lifting water to sawing timber, and fringed on the sky line, with little towns with other mills, and church spires, with finials which suggest, often, a touch of the Moorish art. The church at Overskie is an excellent example of this, and so well worth a sketch, if there be an artist in the party.

One can recognize Delft a long time before reaching it, by a combination of spires of unusual grace, cutting the sky line above the trees. There are four, though one, on nearer approach, is only the railroad station, it is no less worthy in its way than the other three—the Oude Kerke, the New Church, and the Stadhius. When you come into this delightful little town, which will be in a very few minutes, you will find this Stadhius, standing open on all sides, on the town square, one of the most symmetrical and satisfactory pieces of town architecture you will see in many moons. Delft had, in old time, two



NOTHING IS WASTED IN HOLLAND—NOT EVEN THE WIND

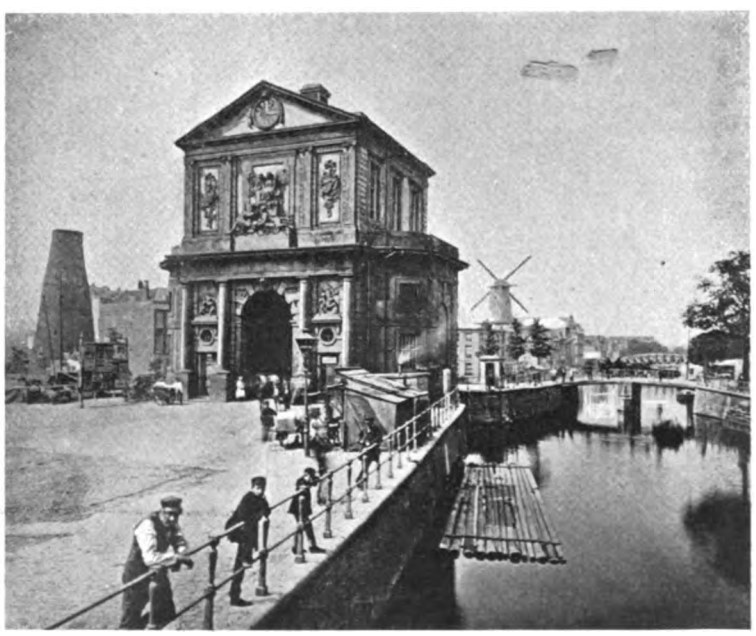


THE CANAL IS THE COMMERCIAL BROADWAY OF ROTTERDAM

glories, pottery and William the Silent; both have long since departed, the latter by the assassin's bullet on Tuesday, July 10, 1584, when he was shot in the vestibule of the staircase of his home, on the canal bank which, of course, you will visit opposite the Oude Kerke. It was in its Stadhius, ten years before, November 12, 1574, that the "Declaration of the Independence of the Seven States" was signed, and William was clothed with absolute authority and sovereign command, excepting only the judges of the Supreme Court. His name and deeds are writ large on every inch of the soil he held sacred, and laid the foundation for the freedom of. Delft is a perfect miniature of beauty, half Venetian, with a touch of China, and altogether lovely and indescribable in the length to which I am constrained.

The road from Delft to The Hague follows the bank of the Grand Canal of the Meuse, flowing between walls higher than the adjacent meadows, higher even than the thatched roof houses on them; and leads through clean, spacious streets, shaded with poplars and umbrageous limes, into the heart of the smallest and most delightful capital city in the world, for it is here that the court of Holland is located, and foreign embassies are assigned. In the center of the town, around a miniature lake, the Vijver, fashion abides, and down to it on one side come the walls of the old chateau of the Countess of Holland, of medieval origin, and in its quadrangle is the Hall of the Knights, who brought the timber of its roof from the Crusades. Here, too, is the Dutch Parliament House, and amply repaying study, but I must away, at least with my pen, advising only that the motor be turned for a little out of its way, to the seaside, down an avenue of ample shade, to Scheveningen, Holland, fashionable and famous seaside place of pleasure.

Less than a dozen miles from The Hague, northward, is Leyden, twice besieged by the Spaniards, the first lasting from October 31, 1573, to March 21, 1574, and the second, and more famous, from May 26 to October 3, 1574, when it was raised by the cutting of the dykes, letting in the sea and drowning out the Spaniards, was one of the most heroic episodes in a long struggle, resplendent in courage and endurance. It is impossible even to outline its features, and presumptuous to do so whilst the American Motley's "Dutch Republic" is available. That incomparable and brilliant writer's story will be found in Vol. II, p. 551-582, and whoso omits to read it, deserves not to go to Leyden. He is not true American. The University of Leyden, after the siege (founded



THE LAST OF THE WATER GATES IN ROTTERDAM

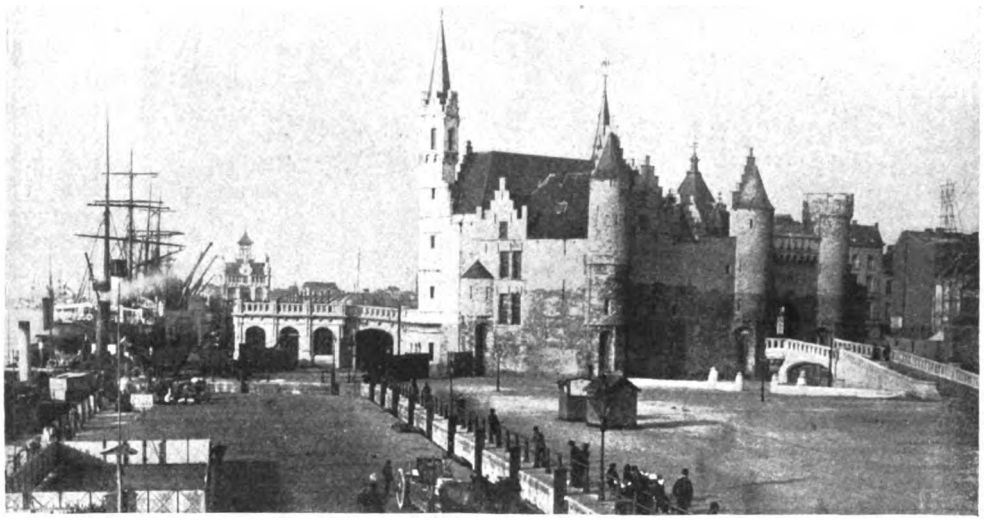
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as a thankoffering) took possession of the chapel and cloisters of the dismantled abbey, and, well, its sons have maintained the city's honor. It was whilst at school here in 1567 that William the Silent's son was kidnapped by the Spaniards, and held captive 17 years, and here came William's widow after his assassination. The way to enjoy Leyden is to take Motley's volume, and read it on the top of the Old Roman Tower, from which the valiant Van der Does watched through the siege, and hurled his defiance at friends and foes alike. "Surrender! Never! Take my body to appease your hunger, but no surrender as long as I live." Here, too, resided and worshipped from 1607 to 1620 the little Separatist congregation who moved from Scroby in Lincolnshire, England, to enjoy religious liberty under the pastorate of the Rev. John Robinson, and from here in the latter year these Pilgrims, having obtained a charter from the English King (James I) started to join the Mayflower at Plymouth, in which they crossed the Atlantic and established the first New England Colony in Massachusetts.



ANTWERP'S CATHEDRAL AND THE STATUE OF RUBENS

The fate of Harlem, the next town on our itinerary was different. At the time of its siege, Alva, the Spanish general, was at Amsterdam, only two miles off, and in the winter of 1571-2 invested Harlem, then one of the most beautiful and largest cities in Holland, with 30,000 troops. With the sea on one side and Harlem Mere, practically a sea (since drained) on the other, and the causeway in possession of its attackers, it was next to impossible to relieve it. It held out, however, until the 12th of July, when upon capitulation every citizen soldier was treacherously massacred, and 300 of its principal private citizens tied back to back and thrown into the mere. The masterly description of its gallant defence, in which even the women joined, will be found in Motley, Vol. II, p. 427-457. In the after years, long after, Harlem became celebrated as the center of the tulip trade about which all Holland went crazy, giving and gambling on such prices that at last the trade had to be restrained by legislation.



THE SPANISH CASTLE, ANTWERP, NOW THE STEEN MUSEUM

Straight as an arrow for ten miles runs the road from Harlem to Amsterdam—a second Rotterdam, now that ships of burden can come up to the town on their own bottoms. It was an important port even when they had to be drifted up to the city on "camels," pontoons under each side, which being filled with water or emptied, raised the ships up out of the water, when shallow, and let them down when it was deep enough. The picture galleries and museums of Amsterdam are of exceptional interest, and its many other curiosities and attractions worthy of a prolonged study. They will be found easily by the aid of excellent local guide books and maps.



HOTEL DE VILLE-BRUSSELS

From Amsterdam the road turns south and is almost a continuation of country residences to Utrecht on the Rhine. It is the real center of the ancient history of Holland, and it was appropriately enough here that, in 1579, "The Act of Union of the Seven Provinces" was signed. It is the seat of a celebrated university, too, and to those who do not mind a climb I would commend the tower of St. Martin, from which I once counted 35 villages and towns in sight.

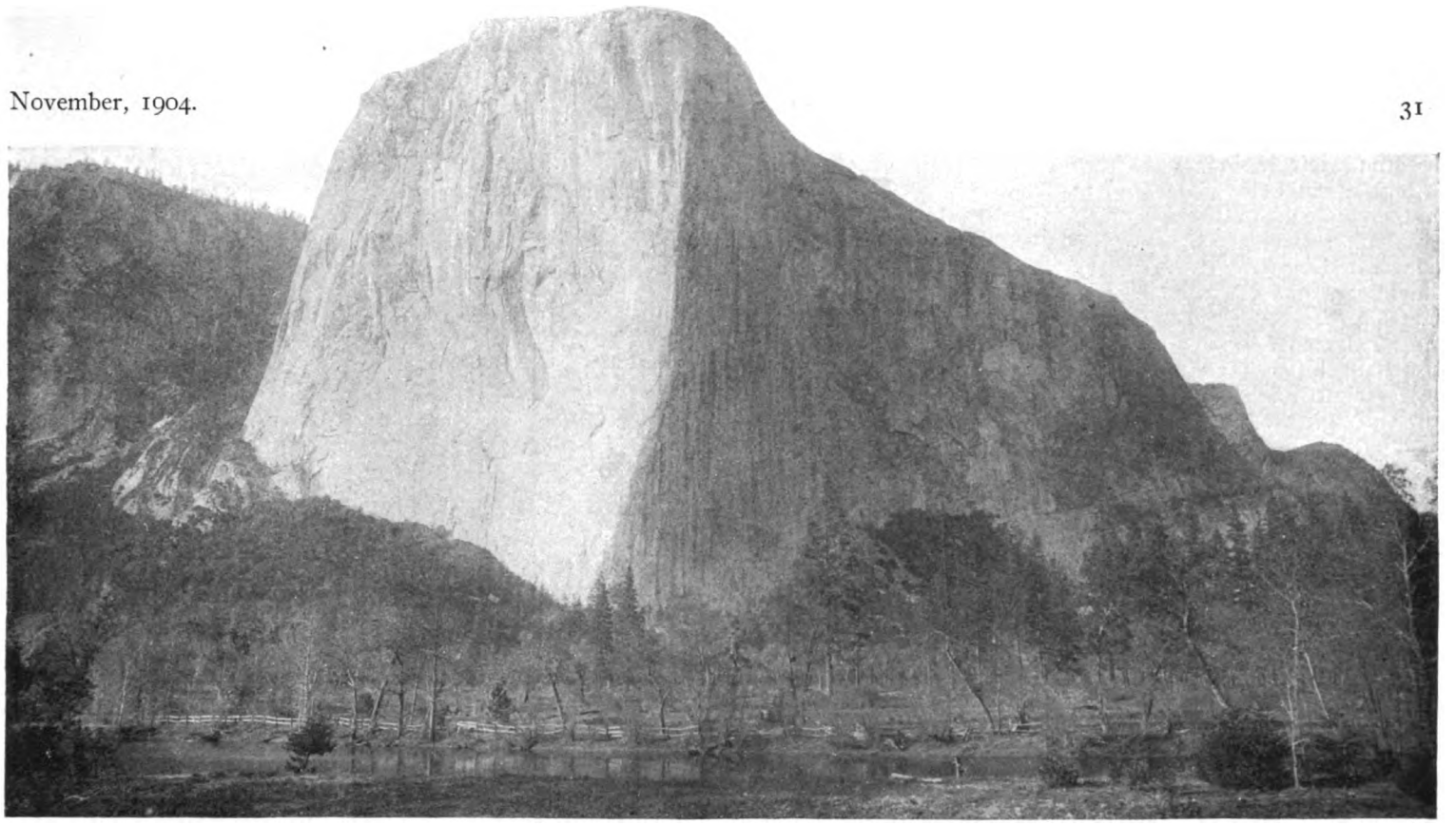
From Utrecht the road gradually bends toward Dort, of which Hopkinson Smith has made many pictures, and I am not surprised, for its pool, and mills, and shipping, are enticingly Dutch and resplendent. It was at Dort that in 1572 Sainte Aldergonde thundered, in impassioned eloquence, the appeal that poured wealth like water into the treasury of William of Orange, and here it was that in 1575 he married his third wife, Princess Charlotte of Bourbon, a refugee nun, an alliance which brought him much domestic tribulation. After his assassination it was the first town to proclaim "by sound of trumpet" its determination to live and die in the cause of religious and civil liberty. Dort had its day of glory, and deserves well of our thoughts, though we be but motorists passing by its ancient water gates. The echo of that trumpet wafted across the Atlantic later.

Crossing the river, and some twenty miles southward, we come to Breda, the patrimonial home of the great liberator, William the Silent, a fair and pleasant city on the Merk, where a predecessor of his had built a splendid palace fortress, which Maurice, his son's soldiers, in 1590, retook from the Spaniards by hiding themselves beneath the turf cargo of a supply boat. It took them a week to get inside, but a very few minutes sufficed for them, in the night, to overmaster the Spanish garrison, though it was Spinola's famous Sicilian legion. It is surrounded by beautiful thriving villages.

We are getting now out of the country of canals, and, twenty-five miles from Breda, southwestward, over black lonely bogs, past scrubby little woods, and over a rather desolate-looking country, the lance-like spire of Antwerp Cathedral, never to be mistaken for any other, far or near, pierces the sky line, and its chimes float on the breeze many a mile; but yon spire has other bells than those silvery darlings. There hangs the great bell of terror, which many a time and oft, has summoned the countryside to arms, for Antwerp, above all the cities of the plains, felt the Spanish iron in its soul. Who has not heard of the "Spanish fury," in November, 1576, when Alva gave up the city to his ravenous soldiery, and, in two days, not less than 8,000 citizens were murdered, and half the city destroyed by fire. Well may Motley say

(CONTINUED ON PAGE 50.)

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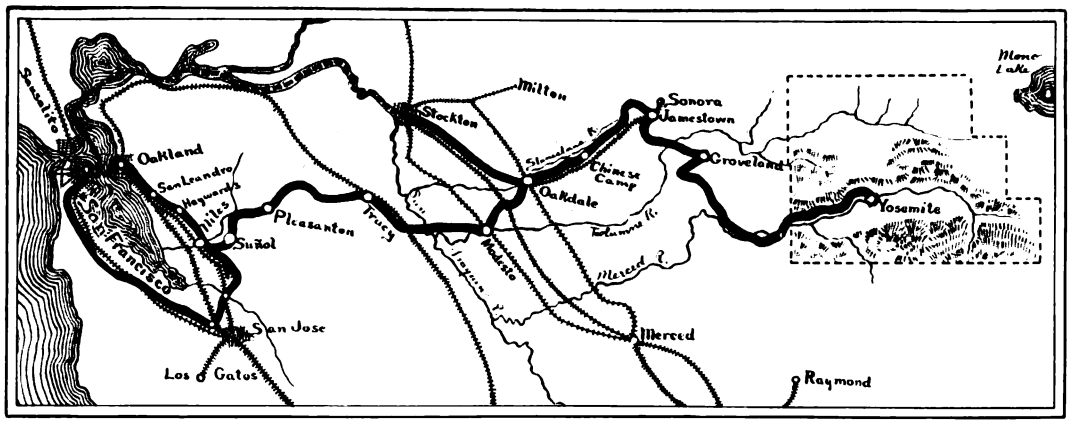
EL CAPITAN—THE MAGNIFICENT

IN THE YOSEMITE VALLEY

By Fernando Nelson

IF all the motor-car journeys that the infinite variety of California permits, none is more fitted to allure than that from San Francisco, the metropolis of the State, to Yosemite Valley, the marvel of the Sierras, and a wonder of the world.

In every desirable feature of a popular tour, this one excels. The starting point is a cosmopolitan center of population, the distance is reasonable, the roads average good, and the wayside abounds in natural and artificial provision for the wayfarer's comfort.



THREE ROUTES FROM SAN FRANCISCO TO YOSEMITE VALLEY

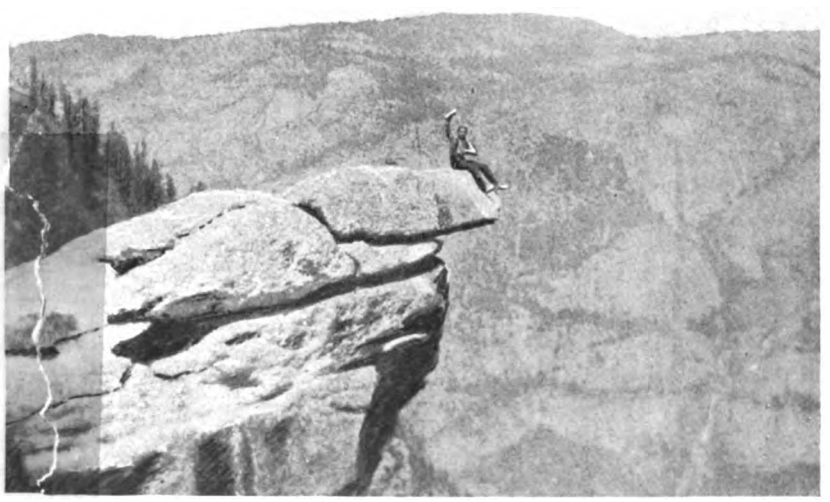
There is a choice of routes from San Francisco. Probably the easiest is by boat to Stockton, and thence by road to Oakdale, Chinese Camp, Jamestown, Groveland, and the valley—a distance of 120 miles due east of Stockton, which is 90 miles from San Francisco. Another route is by ferry from San Francisco to Oakland—4 miles—and thence through San Leandro, Haywards, Niles, Suñol, Pleasanton, Tracy, and Modesto, to Oakdale, whence the first route is followed. An all-land route is around the southern end of San Francisco Bay, by way of San Jose, the second route being followed from Niles.

One of the earliest motor-car trips I planned, even before I had purchased my first car, was that to Yosemite. So, after I felt I had sufficiently mastered the mechanical mysteries of the new purchase, I started early in the year, accompanied by M. Fisher, in another car of the same make, and my two sons, William and Frank. One day's struggle with the mud convinced us all that the project, if not impossible, was at least unseasonable, and we retreated to city streets and civilization.

Two months later the same party again fared forth. This time we went farther, but finally were stalled on a heart-breaking grade that rises 1300 feet in two miles, with places 30 per cent. in gradient and six inches deep in dust. This time it was clear that an 8-horsepower car was inadequate to the task, and again a dejected return was made to the city.

For the third attempt we bought a Winton, and our persistence at last was crowned with success. Except for a few minor mishaps, our party of four made a record trip, and our desire to motor to Yosemite was gratified.

We left San Francisco the evening of July 10, going by boat to Stockton—an all-night trip of ninety miles through San Francisco, San Pablo, and Suisun Bays, and the San



GLACIER POINT AND ITS MILE-HIGH BACKGROUND

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Joaquin River. After a night on the whole uneventful, but punctuated by the pilot's occasional prospecting for the shifting channel, it is necessary to follow through the river delta, we reached the capital of San Joaquin County early in the morning, fairly refreshed by our night's rest in narrow bunks. The boat was tied up, our car was trundled ashore, and we were on our way.

We traveled for but five hours that day, with many roadside stops, the temperature being 110° F. in the shade, and the Winton not having a canopy, but we made good time across the vast wheat-raising plains of the San Joaquin, and up the valley of the Stanislaus, and night found us comfortably settled at Chinese Camp. We arrived in time to climb the divide that separated from our goal, but deferred the attempt until the next morning, for fear of casualties that might ensue from meeting the heavily-burdened teams that come down the narrow mountain grade in the daytime. At 4 a. m., July 12, we clutched in the low gear and ground our way up to the summit—7,480 feet above sea level. We were so fortunate as to meet no teams, and though we thought we made poor time, and on one occasion had even to get out and push the car, because its wheels slipped, our average speed was five times that of the 4-horse stage, which runs regularly between Chinese Camp and Groveland.

Camp for the night was made on the summit, it not being considered safe to descend into the valley until the next day. Though the vicissitudes of travel kept us fairly busy on the way up, we could not help but observe the splendid scenery



THE FAMOUS VIEW FROM INSPIRATION POINT

that was revealed with every onward revolution of the wheels. We were not yet in the famed Yosemite, yet the scenery even on this, and, indeed, on many other stages of the journey, would rank with the rarest the earth's surface bears, were it not so outshone by the greater magnificence of the nearby granite-guarded garden, where Mirror Lake and the Merced River are gems in a perpetual paradise, encompassed by peaks so appallingly magnificent that they silence the tongue and overwhelm the eye.

The day before, we suffered from the heat; yet in our camp on the summit we all but froze. In a distance of a few miles the altitude works a transition from summer to winter, and though the superb outlook included glimpses of valleys wherein the orange reaches perfection and frost is unknown, around us there was a harsh chill in the air that it was hard to reconcile with July and California.

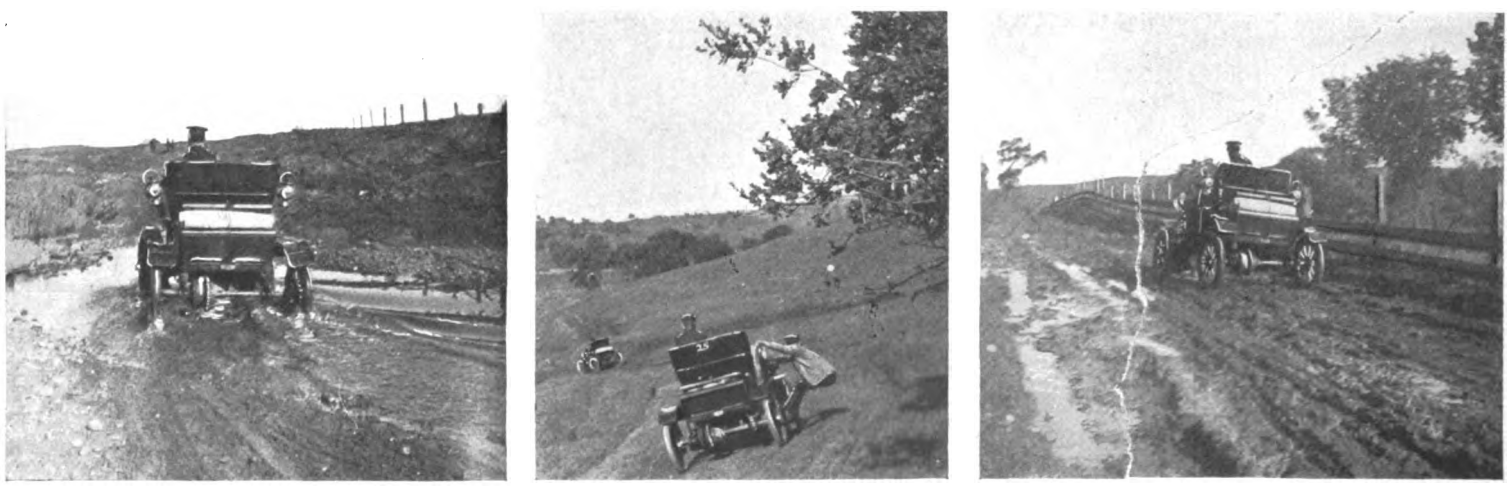
At early daylight we coasted to the floor of the valley, and here description fails.

Yosemite is a sight for remembrance, not for expression.

In the awesome presence of such a masterpiece of nature's incomparable architecture, the writer's pen almost halts at its own weakness and inadequacy. Even the craft and cunning of the artist's brush may be well dismayed at the hopeless task of delineating such imposing beauty.

Language is a means of making comparisons, and language fails to express what may be seen at Yosemite, because for it there exists no standard of comparison.

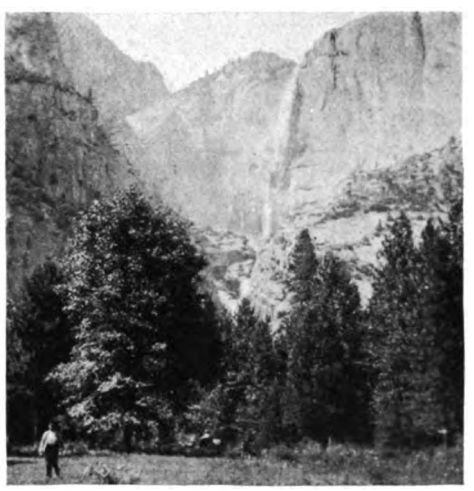
I can only tell that as we in our car glided into the valley,

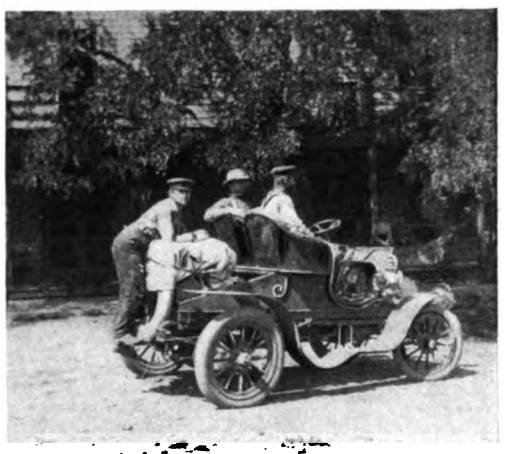


ON OUR FIRST TRIP—BESET BY DIFFICULTIES

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ON OUR SECOND TRIP—DIFFICULTIES SURMOUNTED

we almost felt as insects might in a hall of sculptures. Even appreciation is impossible at first. Wonderment comes first; then appreciation.

First, on the left, loomed El Capitan (The Captain), reared unto the very heavens themselves, like a buttress of some temple of the gods. El Capitan is a single, granite monolith, mammoth enough to be fashioned into the walls and the dwellings and the pavements of a thousand cities. So vast is its expanse that there are tiny flaws in its face which would conceal the Washington Monument, the Eiffel Tower, or even the Pyramids.

On the right, nearer than El Capitan, is the Bridal Veil Falls, a large stream dropping 860 feet in one sheer leap, but spun into a glory of shimmering, wavering, drifting mist before it compasses half the declivity.

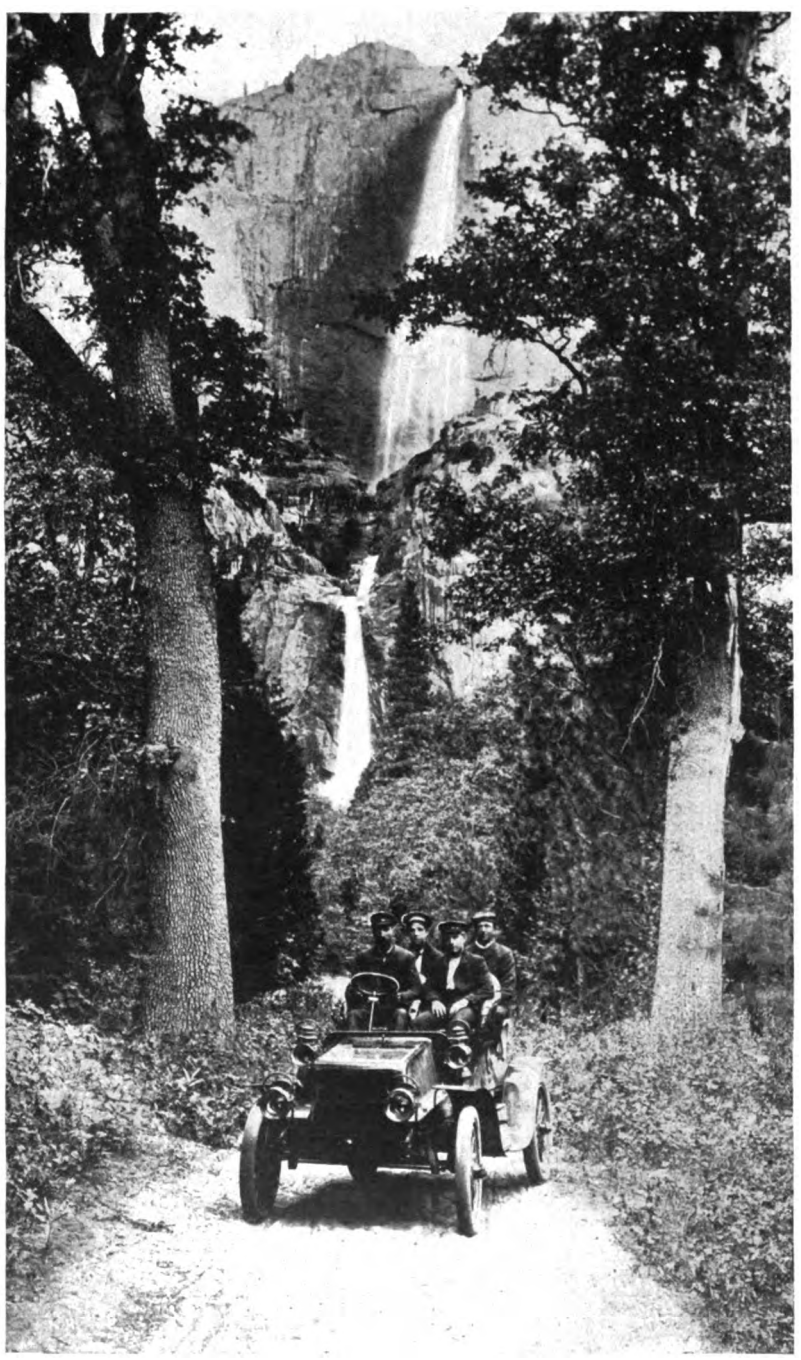
Cathedral Peak and Cathedral Spires, towering and beautiful, are beyond the Bridal Veil. Like some mist-shrouded belfry of a ruined cathedral, they are forever silent except for the eerie whistle of the winds and the stately roll of thunder.

The Sentinel, a splinter of rock that rises 2,000 feet higher than Mt. Washington, and is 3,100 feet above where our car rolls along, is the next conspicuous feature on the right, but the Three Brothers, directly across the valley, perfectly balance the view. Eagle Peak, the highest of the Three Brothers, rises 3,900 feet above the valley floor.

The whole floor of the valley is a series of meadows, bordering the crystal waters of the Merced River, and decked with ferns and flowers and grasses. It is 4,000 feet above sea level, so to the apparent height of the cliffs that encompass it must be added this figure, to determine their true altitude above sea level.

The roads in the Yosemite reservation—the area embraced in and contiguous to the valley proper, which is organized into a government park—are excellently built and well cared for. The California petroleum that has been used for surfacing makes them ideal for motoring, and not the least of the pleasures of our trip was the smooth and powerful motion of our sturdy car, as it carried us wherever we willed to go.

It is a rare pleasure, indeed, to laze back against luxurious cushions and breathe in the sharp mountain air, freshly washed by the dew that still sparkles on flowers and foliage, and to feast the eyes on sights as peerless as they are entrancing; and then, upon the slightest manipulation of levers, be transported hither and thither at will, by a rubber-shod marvel of mechanism that bounds swiftly forward when there is a stretch of good going, that climbs untiringly when it comes to a hill, and that halts immovable when the view commands attention; while at all times it lulls with its steady hum both tired body and worried mind, making care seem a thing of another world and pleasure the dominant note of the present.



A GLIMPSE OF YOSEMITE FALLS

Beyond Three Brothers is the point where Yosemite Creek drops a sheer 1,600 feet—ten times the height of Niagara. It rebounds in a succession of smaller cascades until it has tumbled another 600 feet; then there is the final, unbroken drop of 400 feet, after which it foams to a junction with the Merced River, a total distance of a third of a mile below the point where it first purls over the precipice.

The valley hereon bends sharply to the south, and the first famous feature of interest is Glacier Point. This is the often-pictured, overhanging rock, large enough to give foothold to a dozen or so people, and from which a pebble may be dropped 3,250 feet before it even grazes the wall of the cliff. It was on Glacier Point, in the early days of motoring, that some one with a steam runabout demonstrated the perfection of its system of control by dropping the front wheels over the rounded edge of the rock, and then backing up, repeating the operation several times. It certainly appears to have been well that the system of control was per-

(CONTINUED ON PAGE 74.)

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THE CHOICE OF A MOTOR CAR

By A. Sigmann, M. D.

If we were to apply the old adage, "the proof of the pudding," to motoring, it probably would run: "The proof of the motor car is the number of doctor bills it involves"—leaving it to the reader to guess whether it is the doctor who attends to broken ribs and fractured skulls, or the other doctor who "sets" wrongly-adjusted valves and "bandages" punctured tires.

To the people who are posted on the relative merits of various cars, this article may contain little of interest. They have eaten their pudding, have paid their doctor bills, are satisfied, enthusiastic, dissatisfied, or disgusted, as the case may be. But there are other hundreds of readers who have yet to go through this experience, and who perhaps find themselves in that critical, preliminary stage of motoritis, which is characterized by the following symptoms:

A man, perfectly sound and normal theretofore, suddenly acquires the habit of studying the advertising pages of the magazines, reads in the encyclopedia and various technical works the chapters on "Gas Engines," "Horsepower," and "Motor Vehicles," and mutters strange words in his sleep, such as "spark plug," "float-feed type," "planetary gear," etc., etc.

That man is in the prodromal stage of the new disease. Shortly after, we find his stenographer engaged in writing some fifty odd letters to motor-car manufacturers:—

GENTLEMEN:

Please send catalogue as per your advertisement in MOTOR, and oblige.

* * * * I am,

Truly yours,

X. Y. Z.

The infection has "taken," and the poor man's troubles are well begun. From that day on his mail is flooded with motor literature. Strange-looking, weather-tanned chaps, in long coats, curious caps, and possessed of a variety of gloves that leaves the observer wondering whether they belong to the tribe of fencing masters, or are simply boxing instructors, will make their regular appearance in his office, which will become the headquarters for an army of trial-ride-offering, horsepower-overrating, and speed-exaggerating "general agents," "representatives" (and misrepresentatives), hailing from the local repositories of and agencies for motor cars. The crisis is nearing. As well attempt to stop a 13-inch shell with a sheet of tissue paper, as attempt to prevent that man from going through the full course of the disease, for which only one cure has been discovered.



A CADILLAC CLIMBING 18-MILE CREEK HILL, NEAR SILVER CREEK, ON THE ROAD BETWEEN BUFFALO AND ERIE—THOUGH THE ROAD HERE IS ONE OF THE BEST IN THE COUNTRY, THIS HILL HAS PROVED THE DESPAIR OF MANY CONTESTANTS IN ENDURANCE RUNS

To help and to guide the unfortunates who still are in the initial stages, and to prevent the squandering of money and strong language, are the objects of this article. It is hoped that it may save a few prospective buyers from the confusion that must needs arise if some fifty manufacturers assure him that theirs is "the best car in the world," or if he learns to his astonishment that there are some fifty "largest-in-the-world" plants, and that all of them were "first in the business," "first to cross the continent," "first to introduce vertical cylinders," etc., and that there are some fifty cars that each hold all the world's records for speed, reliability, durability, accessibility, stability, and ability.

Herein will be considered the purchase of a motor car from the standpoint of value received only, to which end an effort will be made to set before the prospective owner such guiding principles as best will enable him to judge the true value of a car.

Quality of the component parts, and power, weight, and behavior under trials—in their relation to each other rather than to the price—are the factors that determine value, which is not always determined by the claims of the manufacturer and the agent, or by the testimonial of the "satisfied customer," who may only have been "satisfied" after considerable pacification. In fact, properly to gage the significance of the "satisfied customer's" opinion, it in any case must be borne in mind that a motorist, *after* having been united in marriage to the car of his choice, becomes as infatuated as is a lover *before* he enters the ranks of the benedicts. And where is the lover who would speak ill of his best girl? Therefore, remember, if an agent request you to "ask the man," and you do ask the man, take his reference, not with a grain, but at least with an ounce of salt. There are cars that will climb church spires and run in circles around the Empire State Express, but only in the imagination of the owner.

Comparison and observation of small as well as of large, but not more important details, are the best means of making yourself familiar with the quality of the body and the chassis of a motor car. The advice of a reliable upholsterer will be valuable, and that of a first-class, practical mechanic indispensable, if you neither have experience in carriage-building materials nor can tell a good motor from a poor one.

The question of relative merit between vertical and horizontal cylinders is not definitely settled, and probably never will be. There are arguments of easier lubrication in the former, and of lesser vibration in the latter, but these hardly point toward an ultimate solution. Both types are good, and a decision should be based only upon due consideration of the conditions of use to which a car will be subjected.

Horsepower is one of the most abused, misunderstood, and intentionally-misrepresented terms in mechanics. Beware of horsepower. It has been the undoing of many a disappointed follower of the sport, who either has learned to his sorrow that he paid a fancy price for horsepower that only existed on paper, or, if he actually receive what he paid for, has found himself the possessor of a white elephant. For the novice in dynamics, who is not afraid of figures, this much may be stated: the power of a motor increases with the pressure in the cylinder (in pounds to the square inch), the length of the stroke, the number of power strokes a minute, and the area of the piston. These factors, multiplied together, and the product divided by 33,000, will give the number of horsepower a motor is capable of delivering. The number of revolutions to the minute is of paramount importance, as this is the loophole through which misrepresentation often escapes. An excessive number of revolutions results in the worst sort of abuse to which a motor may be subjected, and the increase in weight involved by larger bore and stroke, and a heavier flywheel and frame, is insignificant in comparison with the terrific stresses introduced when the rotational speed exceeds a conservative, safe, and efficient figure.

Accessibility is one of the most desirable and most overlooked of structural features, and should not be forgotten.

A happy relation should exist between the power and weight of a car. Where good roads are plenty and heavy grades few, one horsepower is ample for each 125 or 150 pounds of weight, including vehicle and average load—the number of persons that a car is expected to carry always must be taken into account. Cars that behave splendidly during a demonstration may become

(CONTINUED ON PAGE 78.)

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WHEN THE IGNITION FAILS

By Igniter

Missing of explosions, or even complete stalling of a gasoline engine, may occur as the result of trouble in the ignition system. It also is possible that a motor may fire regularly, but develop less than its usual power, because of the ignition being weak, and failing fully and promptly to inflame the charges in the cylinder.

It is exceedingly easy to confound difficulties arising from faulty carburetion with those arising from faulty ignition. When really confronted with trouble, however, careful consideration and investigation, helped by the knowledge of the difference in symptoms presented by the two ills, always will result in ascribing the difficulty to its real cause.

Supposing the motor stops while proceeding along the road; one of the two things is most likely the matter. Either the proper supply of fuel is lacking, or the means of igniting the fuel have gone amiss. In the first case, the trouble is probably in the carbureter or with the fuel supply; in the second case, it is the ignition system that calls for attention.

If, at any time shortly previous to the stop, there were very weak but fairly regular explosions, in greater or less number, or a great deal of smoke in the exhaust, the fault may be set down as probably a matter of carburetion. If there was missing of explosions, or there were explosions in the muffler, the chances are it is the ignition system that must be looked over, though both missing and muffler explosions sometimes are due to a bad mixture.

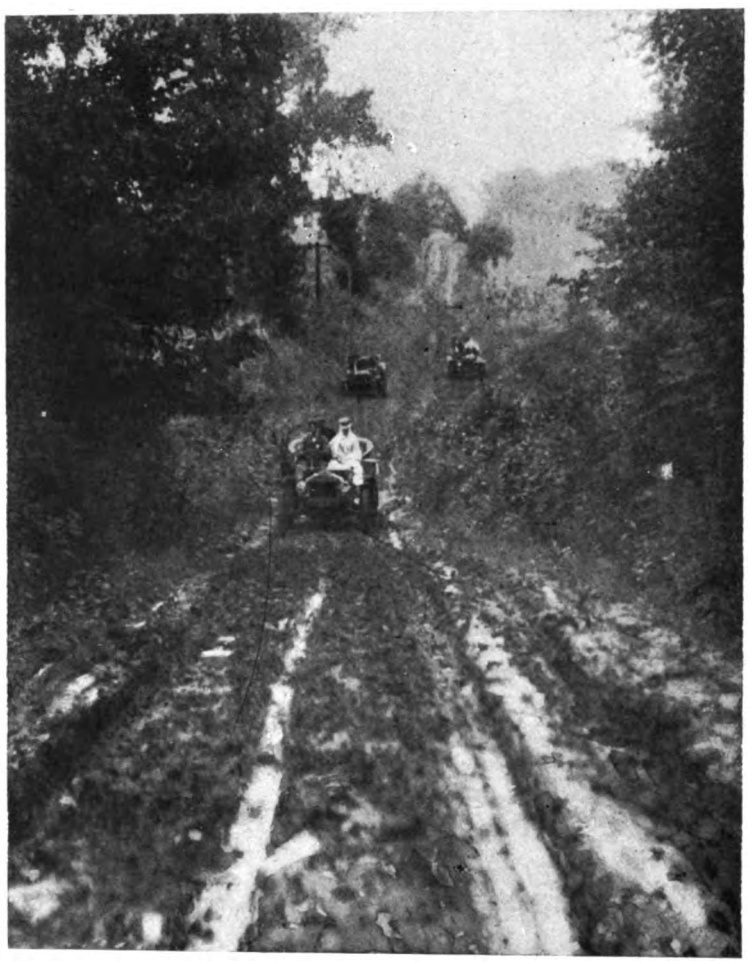
The ear of a trained motorist instantly detects missing in the motor of a car to which he is accustomed. Instead of the steady purr or hum indicating that all is well, there is an occasional halt or discord in the note, showing that one or more cylinderfuls of gas have gone through without exploding.

The best way to make sure that ample current is reaching the cylinders is to remove the spark plug, or plugs, without disconnecting the wire from them, and rest them on their sides on the cylinders. Then, by cranking the motor slowly until it is in the correct position, a spark should leap across the terminals of the plugs. The circuit, of course, is completed by the contact of the outside of the plug with the cylinder wall, just as when it is screwed into place. A spark produced in this manner, however, must not be depended upon as absolute proof that the ignition is all right. The spark, though it occur regularly, may be too weak to inflame the mixture, and, in any case, will appear much stronger in the open air than when produced in the compressed gases within the cylinder, which offer a higher resistance to the passage of electric current than does air at atmospheric pressure. For this reason, an apparently strong spark appearing when the plug is tested outside of the cylinder is not necessarily an assurance that when inserted in place the plug will function properly.

One very good way to test the current in an ignition system is to connect a small incandescent lamp, or—better still—a pocket voltmeter, across the terminals of the battery, if such be used. Dynamos and magnetos may be tested in a similar manner, but are much less likely to be responsible for a failure of the current, as they cannot become exhausted, in the manner of a battery.

A common cause of ignition trouble is a short-circuited plug. A short circuit may be any bridge of conducting material so situated in a circuit that the current may flow from and back to its course without passing through the apparatus—in this case the plug—where it is intended to do work. Soot on the surfaces of plugs often short circuits them, permitting the passage of the current without forcing it to leap the spark gap. Sometimes, when the insulation of a plug is broken down, as by a crack in the porcelain or by a separation of the mica, the current will leap through the break instead of passing by way of the gap. Even an almost microscopic perforation in the porcelain of a plug may act this way, causing a most mystifying short circuit. Trouble of this sort is indicated when the substitution of a fresh plug causes the engine to start after it has refused to with the old plug thoroughly cleaned.

To clean a spark plug, an old toothbrush and a few drops of gasoline are all that are necessary. By all means a better way than roadside tinkering, however, is the rigidly-adhered-to plan of carrying an extra plug or two, to be substituted for any that may become ineffective. Then repairs can be done under more favorable conditions.



A BAD PLACE FOR THE IGNITION TO FAIL

Short circuits outside of the spark plugs may occur at any point where two wires are touching together, and the insulation is exposed, or even when the wires are unduly close, and the insulation is intact. In the ordinary jump-spark system, short-circuiting is most likely to be in the secondary circuit (that between the spark coil and the plugs), the current therein being of higher tension than in the primary (between the spark coil and the current source), and thus capable of jumping a considerable air gap.

A broken or imperfect circuit, of course, interrupts ignition. A break, if not at once obvious, may be located by testing across the circuits at various points with a voltmeter. When two points close together are located, at one of which the full current flows and at the other of which little or none appears, the fault lies between them. It may be even necessary to scrape the insulation off the wires to make this test, and it is not impossible for the break to be concealed in a wire by the insulation, in which case considerable searching will be required to find it.

Poor contacts, as where two wires are twisted carelessly together, or where tarnished binding posts connect the wires to a battery, coil, or plug, are almost as bad as a break, and will permit only an inadequate amount of current to pass. Scraping the wires and nuts at the binding posts, and soldering all other connections, is the remedy.

When batteries run down so that they will no longer give enough current to maintain the engine in operation, they should be replaced, if of dry cells, and recharged, if of storage cells. Usually, however, when dry cells are used, a reserve set is provided, and it is possible, after each set has been exhausted to below the working limit, to connect both together in such a manner that they will continue to effect the ignition for a longer time. Thus to arrange them, they should be placed in series—the positive terminal of one cell being connected with the negative of the next, etc.

While dry cells are inexpensive and readily procurable when replacement is necessary, storage cells must be carefully looked after to insure their giving good service. It is particularly

(CONTINUED ON PAGE 76.)

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WEATHER-DEFYING MOTOR FASHIONS

By Grace Margaret Gould



Courtesy of Saks & Co.
SEAL SKIN CAP

The motor-loving girl never stays home on account of the weather. Home will keep, but opportunities for motoring are too precious ever to be risked. Each ride has a peculiar charm of its own, which, like the hues of the sunset and the glowing colors of the autumn foliage, may never come again.

The enthusiastic motorist never loses the chance of being a motorist. Of course, being a woman, she is dressed becomingly, and being a devotee of outdoor sports, she also is dressed to defy the weather and all its works.

The motor girl's winter costumes are combinations of beauty and utility, and each new wrap also shows that touch of feminine genius which has a happy way of giving distinction to the American girl's dress.

Naturally, a sport so new as motoring calls for the latest and newest expression of styles. It would hardly do to have the conventional wait on anything so very unconventional. As motoring is a law unto itself, so also is it a style unto itself. The motor girl always looks as though she had just stepped out of a motor car, and, after a glance at her costume, no one would suspect her of any connection with steady-going cobs or a spirited team.

And what is it now that her motoring ladyship wears, as rosy and radiant she returns from her ten-mile spin through the crisp, frosty air?

Of course, the horse has been utterly put out of her reckoning, and yet, though dead, a particular horse and a little one at that, has aided materially in the pleasure of her outing. It is a pony's skin that forms the long, loose-fitting outer garment that now is considered the smartest thing in motoring apparel. The Russian pony fur, as it is technically referred to, is very charming in its effective brown shades. It is serviceable, too, and not at all heavy in weight. And not a little of the charm of a pony fur coat lies in the perpetual question it arouses.

The belle of twenty years ago would have knitted her pretty brows in vain before she would have ever dreamed of putting her favorite pony to such a strange use—making a fabric out of the glossy coat which she so often had stroked. But nowadays this is really the only use that the motor girl has for so inconsequential an animal as the horse. Indeed, she never has any time for sentimentalizing over domestic animals.

If, perchance, out at the model stock farm she stands by the rail fence and gazes on a contented looking brown-eyed bossy, her thoughts, instead of turning to writing verses to the beauty of its tender eyes, actually are set on designing that animated pelt into a smart motor coat. Surely, the age and the girl who belongs to it are something at which to wonder.



RUSSIAN PONY SKIN COAT

The smart motor girl is sure to have, this year, among her motor clothes, one outfit entirely of yetta. This is the new name for a little calf's skin. Yetta fur is soft and glossy, and shades beautifully from brown to cream. It is used not only to form an instep-length skirt and short box coat with cap and muff to match, but it also forms the most fascinating of long, loose coats, frequently lined with a warmer fur. Yetta looks very fetching trimmed either with white or deep brown leather.

It is not only the Russian pony and the calf that have had their pelts seized upon by the motor girl. She also is showing this season an unusual fondness for the fur of the Abyssinian monkey, and by the time she has designed this long, glossy fur into a garment for her own special use, not even the monkey himself, who once wore this same fur with pride, would recognize his own skin, refashioned by the furrier.

The monkey fur coat, to which she is most partial, is a graceful, single-breasted, three-quarter length garment, made with a shawl collar of a contrasting fur and two roomy pockets. Civet-cat, which is a black fur, spotted with yellow, and bears a striking resemblance to a tiger's skin, is the fur she likes best to use as the collar for her monkey fur coat, and she also has a Civet-cat fur cap shaped something like a Tam-o'-Shanter, only having a visor of black patent leather and a protection band at the back, to keep the wind off the back of the head, and also keep the ears warm.



Courtesy of Scandinavian Fur Co.
BLACK KID CAP

Even the muskrat is looked upon with favor by the motor girl, for she has discovered that his good-wearing pelt may be exceedingly useful to her when transformed into a smart-looking motor coat. However, she seldom thinks of speaking of her muskrat motor coat. She refers to it instead as her Ramo fur coat. Ramo is an attractive gray fur, and is really the pelt of a muskrat sheared close to the hide. A much-in-fashion Ramo fur coat is a double-breasted, three-quarter length model made with a hood of the same fur, which is large enough to be drawn up over the motor cap.

Many of the fur coats are lined with suéde or with a gay plaid cloth, while for very cold weather the garments are fur both inside and out, generally a different fur being used for the lining.

When it comes to her headgear, the all-around motor girl can laugh the weather to scorn. She has a hat to suit every element—sunshine, cold and storm. There are silky beaver hats in mushroom shape and close-fitting turbans, which owe their charm entirely to the effective colors in which they are seen this season. These hats are invariably made with a silk curtain which fits snugly about the head at the back, and either buttoning or tying in front. Good-looking motor hats also are made of silk cravenette, with a rosette of the same material at the side. These hats now are sold with adjustable rosettes. One may be of silk in the new tapestry design; another of embroidered kid, and perhaps a third of rubberized taffeta, which the rain cannot injure.

For fast riding, the motor girl invariably wears a cap, and those of soft leather with a stiff, patent leather visor are still the most in demand. Where they once were made only in black, they now come in a number of attractive colors, generally made to order to match the coat.

Fur caps also are in vogue, and many of these are quite away from the conventional cap design. Those showing the top in the form of a Tam-o'-Shanter with a fur rosette are very new. These fur caps are made with a deep hood of fur, which may be folded under the crown at the back when not needed, and they have a stiff patent leather visor. Of course, the motor girl includes a number of hoods in her millinery collection. Those most in favor for this winter are made with a deep cape, thus protecting the shoulders as well as the head. The smartest hoods are lined with brocaded satin and tie under the chin with satin ribbons. An inexpensive hood to wear with any style of motor costume is made of electric seal, but it goes without saying that the motor girl, who worries her head very little about the question of dollars and cents, has a hood made purposely to match each fur coat which she wears. And in addition to her fur hoods she has at least two or three different style hoods made of rubber tissue to slip over her hat or cap when an unexpected storm puts in an appearance, and wind or rain threaten to do damage.



CRAVENETTE CAP AND DUST HOOD



NATTY TURBAN WITH TAPESTRY ROSETTE



Courtesy of Saks & Co.
HOOD WITH SHOULDER CAPE

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No more extraordinary display of enthusiasm in behalf of the motor car can be conceived than that manifested by New York society on Saturday, October 8, at the contest for the W. K. Vanderbilt, Jr. Cup on Long Island. Sunrise is apt to play the mischief with people who sit up all night, and pretty women are aware that there is nothing that makes greater havoc of their good looks, or that exposes their complexion to a more cruel test, than to face the dawn without having been previously refreshed by sleep. Yet all the boxes and seats on the grandstand at Westbury were occupied before the break of day by women, not only of the first youth, but even by those whose grown-up daughters have children of their own, and who might, therefore, have been excused for refraining to subject themselves to so severe a trial.



MRS. W. K. VANDERBILT, JR., WAS A MOST INTERESTED ONLOOKER

Mrs. Charles Dana Gibson, in mourning, was there with her pretty sister, Mrs. Reggie Brooks. Mrs. Larry Waterbury looked as fresh as a rose. Nor would any one have dreamt from her appearance that young Mrs. Willie Vanderbilt had been up all night long. Mrs. W. Butler Duncan, Mrs. Hermann B. Duryea, Mrs. Sidney Dillon Ripley, Mrs. Thomas Hitchcock, Mrs. Maxwell Stevenson, in brown and gold; Mrs. E. R. Thomas, in black and white check; Mrs. Perry Tiffany, Mrs. O. H. P. Belmont, and Mrs. William Jay were among those present, and remained on deck—I mean in their boxes—on the grandstand at Westbury, until the end of the race—that is to say, until nearly 2 o'clock in the afternoon—refreshments being handed round from time to time by servants from the various country seats in the neighborhood. And then, when it was all over, everybody adjourned to the luncheon parties given by Mrs. Belmont, Mrs. Hitchcock and by all those hospitable people who have homes in the Meadowbrook district.

* * *

November, which brings with it the annual Horse Show at Madison Square Garden, and the inauguration of the opera at the Metropolitan, marks the opening of another season, not only in New York, but at Washington, Chicago, Philadelphia, Boston, and in most of the big cities throughout the land. From now on till the beginning of Lent, gayeties of one kind and another will be the order of the day, and while many of those who have country seats in the suburbs keep them open until after Thanksgiving, and sometimes even as late as Christmas, it is mainly for the purpose of entertaining house parties over Sunday, the remainder of the week being spent in town, where all the mansions in the residential district now show signs of occupancy and animation. Theatres and fashionable restaurants are crowded. Each incoming steamer brings back well-known people who have been spending the summer abroad, and who are returning for the season, and there is every indication of the latter proving exceptionally brilliant.

* * *

People gather from all over the Union for the New York Horse Show, and during the next two or three weeks the city will be crowded, and hotel accommodation at a premium. Much difference of opinion prevails as to whether it is the horses or if it is the sumptuary and social features that constitute the chief attraction of the Show. Some, indeed, go so far as to say that one of the principal features thereof is to be found in the extraordinary display of motor cars employed to convey people to Madison Square Garden. In fact, when the Show is at its height, the vast number of motors of every conceivable description awaiting their owners outside the Garden, afford to many a more interesting exhibition than do the horses and the clothes on view inside the building. They represent everything that is newest in the line of machines for those who have any desire to keep abreast with fashion are bent on driving nothing but cars of the latest and most up-to-date description, and manifest just as much horror at the idea of being seen in a last year's motor as would a pretty woman at the suggestion of her wearing a last year's hat. Under the circumstances, one is tempted to wonder what becomes of all those motor cars, some less than a year old, which have been discarded, as having ceased to please.



SOCIETY IN THE GRAND STAND AT THE VANDERBILT CUP RACE

* * *

King Alfonso's motor car has led to a cabinet crisis in Spain, and as it is the first instance of a motor coming into collision with a national administration, it merits passing note. The reason why the Spanish Prime Minister threatened to resign if the eighteen-year-old King persisted in his intention of making a tour from one end of the kingdom to the other in his motor car, was that he feared that the young ruler would see more than it was intended by his constitutional advisers that he should know. From time immemorial

(*Continued on page 64.*)

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ONE SEASON OF MOTORING AFLOAT

By Duncan Curry

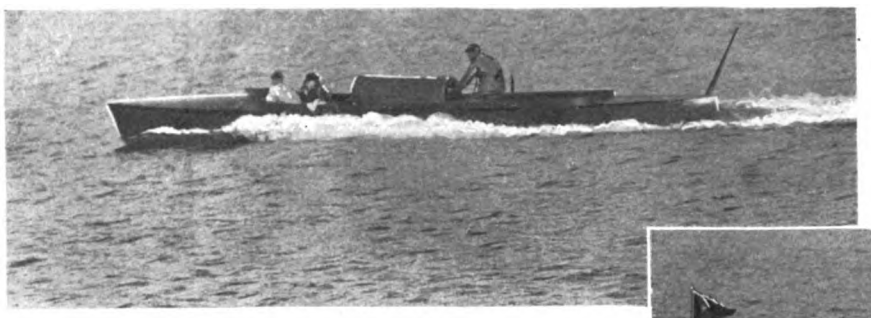
Now, that the motor boat season is over and builders and designers are preparing their plans for next season's campaign, one has a chance to look back calmly over the past year's work and discuss the effect of these up-to-date marine flyers in the power boat world.

Take it all in all, while the modern motor boat has not revolutionized the building of power boats, it has produced a new type of racing craft which is decidedly faster and cheaper than most steam-driven craft of equal power, and has proved a decided benefit to the industry as a whole.



VINGT-ET-UN II, THE CHAMPION OF THE YEAR

The earlier performances of some of the motor boats were distinctly disappointing to their builders, who were looking for almost impossible speeds from over-powered hulls that were not only deficient in length and stability, but were of such fragile construction that the wonder was that they were held together at all. These mistakes and errors of judgment, which are almost always inseparable from the inception of a new industry of this character, were gradually corrected as the season progressed, and when the motorists began to get the hang of the game they discovered that, while 2 and 2 made 4 in mathematics and on paper, it did not necessarily mean that doubling the power would double the speed of a boat and that even a motor boat required some sort of a seaworthy hull under her or she would come to grief.



SPEEDWAY, A GOOD PERFORMER

As the season progressed the work of the motor boats showed a decided improvement, and it is only fair to state that, when the final races of the American Power Boat Association were held on the Hudson River a few weeks ago, the majority of the boats were making much faster time than they did earlier in the season.

Whatever errors of judgment were made by the motorists were due more to inexperience than anything else, but the same excuse did not hold true with the designers of the hulls, who certainly were largely to blame for turning out the worst-looking lot of freaks that ever floated on blue water, and, as they knew better, they were in no small measure responsible for the black eye given the industry at the start. It was not that the motors would not mote, for they did their part nobly, but even a motor has to float to do its work properly. Unfortunately, in their effort to make their hulls lighter than their engines, the designers had sacrificed everything to speed, and except in seas of mill-pond smoothness the boats took in so much water that their engines were quickly disabled.

The results of this all was that boats with some stability like the *Standard*, *Vingt-et-Un II*, *Speedway*, *Nada*, and *Water Lily* left the other boats far behind in any sort of a sea, and even in smooth waters they were far faster than the freaks, if we except W. K. Vanderbilt, Jr.'s solitary victory with the *Mercedes VI*, which was due more to time allowance than anything else.



H. L. BOWDEN IN HIS FAST MERCEDES, U. S. A.

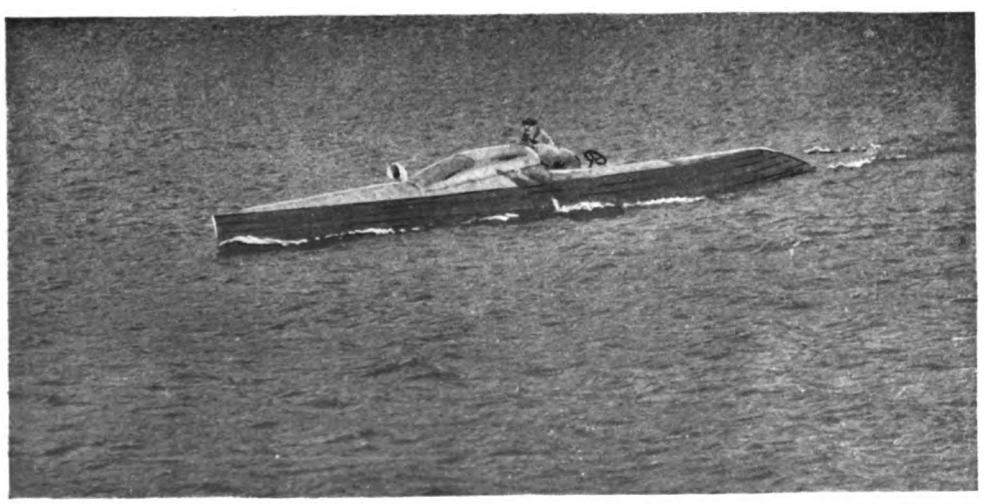
With the data and experience gained during this season's racing I look to see a far different, more useful and faster type of motor boat produced next season. This year the hulls of most of the boats were about 40 feet or less on the water line; next year, if the builders are wise, they will increase their length to 50 or 60 feet, give them a little more freeboard and beam so that they can stand more power, and the result will be a far faster boat.

On a 40-foot hull, about 75-horsepower is the limit of engine that a boat of this length can carry. Any increase over this makes the boats seem overpowered and they have a tendency to yaw and steer wildly, for the engine not the helmsman, then, has charge of the boat.

With a 50 or 60-foot hull it would be possible to put in a 150 or 200-horsepower engine, and in a boat of this length and power there could be no excuse to build anything but a fairly sensible type of hull.

So far as record-making went, the new motor boats did very well. Starting in at the Manhasset Bay regatta on Decoration Day, the Seabury *Japansky*, a 40-foot boat of about 30-horsepower, covered a 19½ knot course in 1 h. 6 min. 29 sec., or at the

(CONTINUED ON PAGE 68.)



W. K. VANDERBILT, JR. IN HIS MERCEDES VI.

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AUGUSTE'S MOTOR CAR

By A. M. Davies Ogden

Even for the Waldorf-Astoria the corridors were unusually crowded, the carriages unusually numerous. Upstairs the much heralded fair for the benefit of the Stuyvesant Home for Crippled Children was in full swing, and the excitement of it rippled to the furthermost corners of the huge caravansary. The café was full to overflowing, and Auguste, only the blue Swiss eyes betraying the fires that burned within, hurried to and fro, listening eagerly, while he carefully served his patrons, for scraps about the marvel upstairs. If he could only see it! His old dreams of sitting himself at a little table, ordering drinks with a languid air and listening to the music at his ease, all these idle fancies merged into one desire: to see the fair, the smart women, the gorgeous clothes. But he might just as well wish for the stars to make into a coronet for his Julie, brown-eyed little Julie, who was waiting for him so faithfully. Julie did not sympathize with Auguste's aspirations. Just enough money to buy a little shop in which she could be mistress and deal out her wares to busy customers was her dream. She would enjoy dazzling the neighbors—yes, why not—but things more substantial appealed first.

It was growing late in the afternoon when into the café came Jerry Delafield and several other young men. He held up his finger for Auguste, who hurried to answer.

"Five, and quick, please," was the order.

Tom Hathaway, who was fairly bubbling over with laughter, leaned across and struck Delafield on the back.

"Yes, you better; $20 for two chances on a bum motor car!"

"One can't refuse a woman," Delafield began stiffly. "I'm sick of this ragging. Darn the old tickets, anyway; I don't want them; hate motors, too; always running away or blowing up."

"Give the tickets to somebody, then," interposed Melton; "because you are beastly rich, the rest of us aren't." Delafield shook his head.

"Not to any of you, after the row you've made. I know, I'll give them to Auguste."

"To Auguste?" echoed the crowd.

"Sure," with restored good humor. "Here, Auguste. They are tickets for a raffle," he explained, as the man looked puzzled. "The winner will be drawn to-night. I hope you get it. The prize is a motor car."

Auguste caught his breath. A motor car! And he stood a chance of getting it! His manner was more smooth than ever as the evening advanced, but his mind was in a ferment. What number would come up? And then a horrible thought grew; should his number be drawn, how was he to know?

The sight of Jerry Delafield in the doorway glancing eagerly about the room gave him a sudden shock; for a full moment his heart stopped beating, then it sank to his boots. It could not be for him that Delafield was searching. He glided quietly forward and halted a few paces away. Delafield dashed forward.

"Auguste, you are wanted in the ballroom."

In the ballroom! Auguste had never even been there but once when the lights were out and the boxes shrouded with cloths. He stammered and shook his head.

"My work—Mr. Oscar—"

"Oh, Oscar will let you off for a minute." Delafield beckoned to Oscar and spoke a few words. Oscar smiled.

"Anything to oblige you, Mr. Delafield. But you won't keep him too long?"

"No."

The next minute Auguste found himself in fairyland. Gay booths lined the walls of the big room, beautiful women in shimmering satins and jewels filled the boxes, whirling dancers slid over the polished floor. Auguste sighed with ravished eyes, but Delafield steadily led the way to the end of the room where on the stage stood—oh, wonder of wonders—a great red motor car. Auguste felt his head pain. This, then, was the prize, this splendid thing with its gorgeous paint and glittering brass! How magnificent! And people actually rode in such things. He touched it with awe. But a man in front was speaking and Auguste listened. What were the incredible words he was saying: "The winner of this motor car holds the ticket 721. Will the winner please step forward?"

As if in a dream Auguste felt himself shoved along, while the people broke into laughter and applause. The man waved a hand toward the stupendous machine.

"This is yours," he said.

Auguste listened in stunned silence. His! "Thank you, sir," he said, mechanically. The machine was his; he had won! They all said so, cheering and clapping. These ladies and gentlemen were cheering him, his good fortune, his unspeakable luck. Suddenly the realization of it all swept over him. He owned that thing, he could ride in it, he could take Julie in it. He was almost overwhelmed. Delafield came up behind him.

"If you should want to sell, Mr. Hastings, who is waiting for his own machine, will take yours and give you a bonus of two hundred and fifty dollars. His will not be finished for six months yet and he is anxious to get one."

But Auguste shook his head obstinately. He would not sell.

He was rather frightened next morning when he learned the cost of boarding the thing. Also, at first he would need a chauffeur. The price half staggered him. But he had his savings and he could always sell the machine if necessary. First he would have some fun. The brief spin through the Park with the chauffeur went to his head like champagne. Ah, that was living! He would tell Julie nothing until he could run the thing himself, and then! His imagination soared to rapturous heights. Truth to tell, he was also a little afraid of Julie's practical judgment. What would she say to this reckless dipping into their fund. A motor car was certainly an unnecessary luxury for a working man. But he smothered his misgivings. Julie would enjoy it as much as he. And the poor girl needed a little pleasure. She worked too hard at that milliner's. A ride would rarely freshen her up. He smiled indulgently at the glorious thought, drawing in deep breaths of ozone.

By Sunday Auguste considered that he had mastered the intricacies of his new possession and was quite capable of manœuvring the thing himself. Accordingly, on Saturday night, he broke the great news to Julie. Her cries of wonder fully justified his proud expectations; he felt like the prince of a fairy tale as he unfolded his plans. Yes, he had a whole holiday the next day. They would go in the car to Claremont,

(CONTINUED ON PAGE 52.)

THE COP AND THE MOTORIST

WITH APOLOGIES TO W·S·GILBERT

When the Cop bikes out his daily beat to cover
And the Motorist motes by him, out for fun.
Taking one consideration with another,
A policeman's lot is not a happy one.

When the Motorist clips by, a mile a minute,
And the Copper sees that this time he is "done"
Taking one consideration with another,
A policeman's lot is not a happy one.

But when the Copper has good luck and nabs him.
And hales him to the station on the run,
Taking one consideration with another,
A motorist's lot is not a happy one

And when in Court the Justice find him guilty
And soaks him with a fine, the trick is done
Taking one consideration with another,
A policeman's lot is then a happy one

J F GOODRIDGE

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SWISS DISCOURTESY TO MOTORISTS

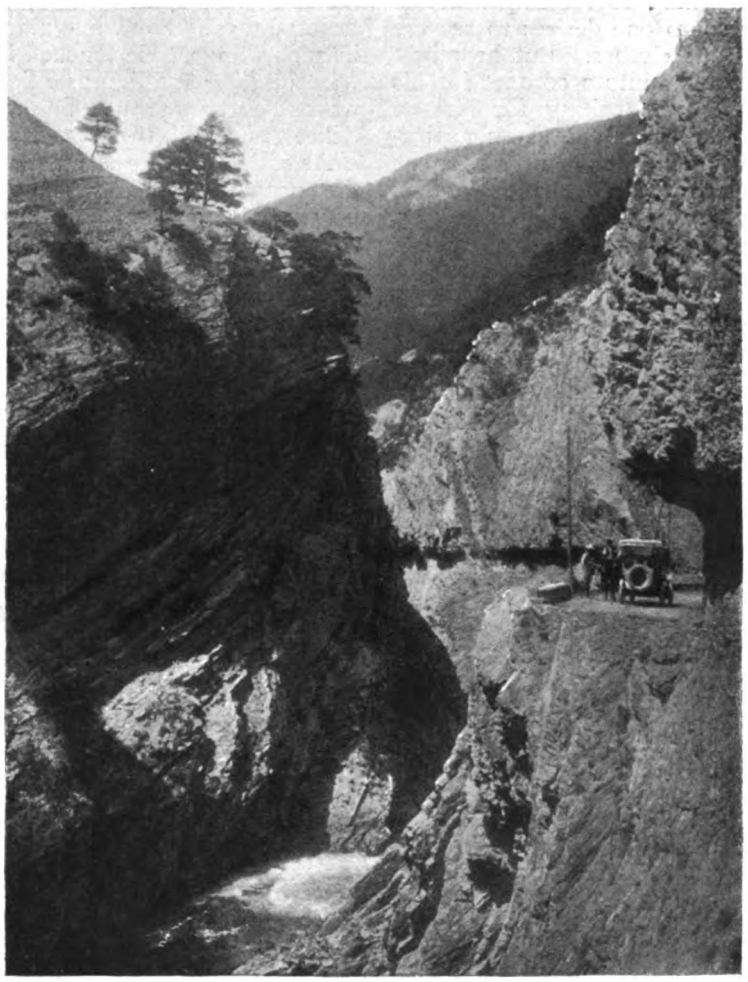
By Tourist



IN THE VALLEY OF ROMANCHE

Of the motorists who visit Europe, comparatively very few venture into Switzerland to enjoy its grand scenery, possibly because the climbing of mountains is an accomplishment that is not possessed by every motor car, especially when the narrow upward path exists for miles and requires a pull that demands horsepower of the full measure guaranteed by the maker. Recently those tourists who have covered Switzerland have returned with tales of much unpleasantness shown to them by the authorities, and in many instances the motorists have been subjected to impositions and hardships which would make it appear that the Swiss have little desire for the presence of the motor cars. Of course, the hotel rates are increased proportionately whenever a motor car arrives at the door, but this feature is not as distressing to the average traveler as the frequent arrests and heavy fines for alleged violation of the speed laws.

An English paper, the *Autocar,* comments as follows: "We regret to say there has been no relaxation of the objectionable methods pursued by the Swiss authorities. These methods are far and away more disgraceful than the most anti-motor bench in this country dare to indulge. It is very evident that the Swiss regard motorists as their legitimate prey. They presume on the beauty of their country, and imagine that its attractions are so great that visitors to it will put up with any expense and inconvenience rather than stay away. This is a matter which the automobile clubs of Europe might well take up in concert, and, unless they obtain positive assurance that justice will be done, they should advise all their members to keep away from Switzerland. We admit—and everyone admits who knows anything about it—that any approach to reckless motoring should not be permitted for a moment, as on many of the Swiss roads it would not mean danger to the motorist alone. But surely there is a middle course between preventing reckless driving and the indiscriminate fining of every motorist who passes a given spot."



A 16-20 HP. MARTINI MOTOR CAR IN THE GORGE LES GRAND GOULET—ONE OF THE MANY SUBLIME VIEWS TO BE FOUND IN SWITZERLAND

A tourist, writing of a recent tour, commented on its features thusly: "It was necessary for us to take great care to avoid chills; but, despite precautionary measures, none came unscathed through the tour, the indisposition proving particularly trying owing to the severe physical strain. Turin, where sleep has been impossible for heat, has been left at five o'clock in the morning in the lightest possible attire. Within three hours the car has climbed like a cat up among the white peaks. There all available wrappings have had to be donned and snowballing has had to be indulged in to ensure good circulation. Sometimes we experienced bleeding of the nose owing to the rarefied air at great heights. We have lunched late in Grenoble, craving for a breath of cool air, and slightly shivered as the evening breeze was felt at the Lauteret. The most refreshing slumbers are those that come when the nights are spent on the heights, as at the Petit St. Bernard and St. Pierre de la Grande Chartreuse. But in the hottest part of the day it has been always possible to enjoy a cool, refreshing breeze even when not actually on the heights, simply by seeking out the valleys along which the mountain streams rush rapidly."



AGAIN THE GORGE LES GRANDS GOULET

Several prominent American tourists are making plans for a 1905 Swiss tour.



A QUESTION OF RIGHT OF WAY



THE MARTINI'S DESCENT FROM COL DU VARS



SHEEP WERE OFTEN MET

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HARTFORD'S MOTOR-DRIVEN FIRE ENGINES

By W. J. Johnson

In these days when the adoption of the motor car is fast becoming universal, one hears more or less of the so-called automobile fire engine. The first American steam fire engine was a self-propeller, and was constructed in 1840 by P. R. Hodge, an ingenious mechanical engineer, of New York. The engines were horizontal, and had their cylinders attached to the smoke-box of a tubular boiler of the locomotive type with the steam dome. The pistons of the steam and water cylinders were on the same rods, and the connecting rods were attached to the cranks on the rear wheels.

When the engine reached the scene of action, the rear or driving wheels were jacked up, in which case they served as balance wheels for the engine. This early piece of apparatus was very efficient, but the prejudice of the volunteer departments of the time was so strong against such a mode of fighting fire, that it was never used to any extent. Thus the self-propelling fire engine is by no means recent.

In 1867 the Amoskeag Corporation, of Manchester, N. H., built an experimental steamer, fitted to propel itself. A second one was built soon after and was regarded as a wonder. It was exhibited throughout the country, but failed to sell, and was, therefore, placed in storage, until some five years later, when the great Boston conflagration broke out, at which time the threatened city appealed to Manchester, N. H. for aid. The Amoskeag Corporation immediately dispatched the old propeller to the scene, and it rendered such good service that the city of Boston purchased it. It was eventually altered for horse draft, and is still in service. Such was the second American automobile fire engine, and in comparison with the steamers of the present date it was a rather crude affair.



THE LOCOMOBILE USED BY THE BROOKLYN DEPARTMENT

Hartford, Conn., has, without a doubt, done more to thoroughly demonstrate the efficiency of this type of apparatus than any other city in the world. Four steamers of this type have graced the Hartford service, the first in 1876, a first-sized, double-crane neck, which is still on duty as a spare engine, twenty-nine years in service—a good record surely. The second was installed in 1879, and was classed second-sized, double. In these early steamers, a single, linked chain drive was employed, the differential being located on the real axle, which turned. In 1889, an order for an extra-sized steamer, self-propelled, was placed with the builders, by the Hartford Department. It was classed as an extra first-sized, double crane neck, and proved a great success. Because of its size it was commonly called "Jumbo," and often performed for out-of-town officials. It was for years the largest of its class in the world. The dimensions of "Jumbo" are as follows: Weight, 17,000 pounds; pump capacity, 1,350 gallons a minute; boiler, 40 inches in diameter; cylinders, 9½ inches; pumps, 5½ inches, and stroke of 8 inches. At the first trial this engine threw through fifty feet of leading hose of 3½ inches in diameter, a stream 348 feet; through a 1½ inch nozzle, 338 feet; through a 1¾ inch nozzle, 319½ feet.

In August, 1901, the fourth steamer of the self-propelling type was installed in Hartford. Like "Jumbo," it was an extra-sized, first-class, double crane neck, and is a fine piece of apparatus. It is a trifle larger than "Jumbo"; the boiler is of the submerged flue type, 40 inches in diameter, flaring at the bottom to 46 inches; composed of 313 ½-inch copper tubes; the grates are 4 inches in diameter; the cylinders of the engine, which will develop 80 horsepower, are 9½ inches; pumps, 5¾ inches, and stroke, 8 inches. The entire machine weighs 18,000 pounds, carries a 6-inch suction, throws 1,450 gallons per minute, and can throw four 1¼-inch streams at once with good effect. A 100-gallon water tank supplies the boiler when the engine is on the road, and is located under the tillerman's seat. Two throttles comprise the control, one on the left side of the boiler to control while pumping, and the other is located on the right side of the boiler in the rear and controls while steaming on the road. The reverse is conveniently located on the right side and works on a quadrant. Three sizes of hose may be used, 2½, 3, and 3½ inches in diameter. The larger ones can easily penetrate an ordinary brick wall. Steam is maintained at 100 pounds while the engine is housed, and on the road 130 pounds is maintained. A boiler located in the cellar serves a complete circulation of hot water and steam, when housed. The engine has two bal-



ONE OF THE LARGE ENGINES OF THE HARTFORD DEPARTMENT

(SEE PAGE 74.)

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TRANSMISSIONS AND SPEED GEARS

Little Lessons in Motor Mechanics, No. 6

By Victor Lougheed

Under the general head of *transmissions* may be classed not only the elements of a motor vehicle that transmit the power developed by the motor to the driving wheels, but also such as fulfill the secondary function of varying the ratio of motor rotation to that of driving wheel rotation. In the latter category comes the great variety of *speed-changing mechanisms—chiefly* of the *sliding gear, planetary gear,* or *individual-clutch* types, but also including *belt* and other *friction transmission,* in which it is sought to combine transmission and speed-changing in one complete, simple mechanism.

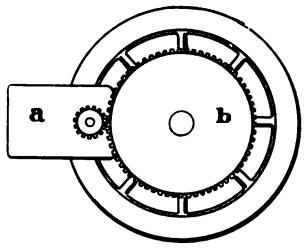
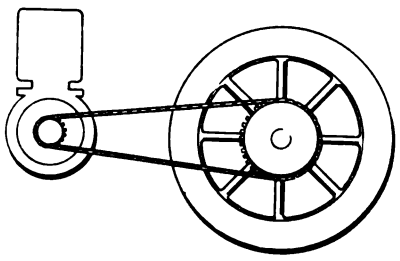


Fig. 42.—Spur-Gear Transmission

Spur-Gear Transmissions are very simple. Such a transmission in elementary form is illustrated in Fig. 42, which is a construction fairly common on electric vehicles and some steamers. In this transmission the pinion, *a,* is affixed to the motor shaft, and drives the gear wheel, *b,* which is mounted directly on the rear axle.


Fig. 43.—Chain Transmission

Chain-and-Sprocket Transmissions, Fig. 43, are much employed, and when properly designed give excellent results, whether used as the complete transmission or simply as elements in a more elaborate transmission mechanism. For motor-vehicle service, the best results unquestionably are to be secured by the use of chains in which there are small rollers to bear against the teeth of the sprockets, in place of the solid-block construction familiar to every one who has examined a bicycle.

Bevel-Gear Transmissions have come widely into vogue because of the ease of protecting them from dust and dirt, and because of the facility with which they lend themselves to the popular engine-in-front form of vehicle. A typical bevel-gear construction is illustrated in Fig. 44, in which *a* is the motor, *b* is a propeller shaft, *c* and *d* are the bevel gears, and *e* is the rear axle. In this form of transmission, it is evident that the power is transmitted "around a corner"—a plan that, in spite of its great advantages, is very slightly objectionable because of a slight loss in efficiency.

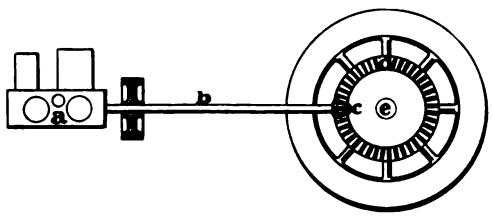


Fig. 44.—Propeller-Shaft Transmission

Speed-Changing Mechanisms are universally employed on gasoline motor vehicles, inasmuch as the ordinary gasoline engine will not run well at speeds much above or below a certain rate of maximum efficiency, whereas it is practically necessary for a vehicle to be freely capable of speed control through a wide range. A speed-changing mechanism provides for this by making it possible to vary the ratio between the engine revolutions and the driving-wheel revolutions. For instance, on the highest speed, the driving-wheels of a vehicle might make one revolution to three of the engine, on the intermediate speed they might make but one revolution to eight of the engine, and on the low speed they might make one revolution to eighteen of the engine.

Sliding gears, in their commonest forms, are similar to that sketched in Fig. 45, in which *a* is the engine shaft and *b* is a separate shaft, in line with the engine shaft, but capable of being connected with it by the clutch *c*. A third section of shaft is shown at *d*, this being geared in any approved manner to the rear axle or driving wheels. A sliding sleeve, carrying two gears, *e* and *f*, both cut in one piece from the same piece of metal, is arranged to slide back and forth on the shaft *b*. The hole through these gears is square, and the shaft *b* is likewise squared at this point, so the gears are forced to rotate with the shaft, regardless of the longitudinal movement they are permitted upon it. A *lay shaft, g,* having fixed on it the four gears, *h, i, j* and *k,* is fixed near to and parallel with *b*. At all times *h,* on *g,* is in mesh with the gear *l,* on *d*.

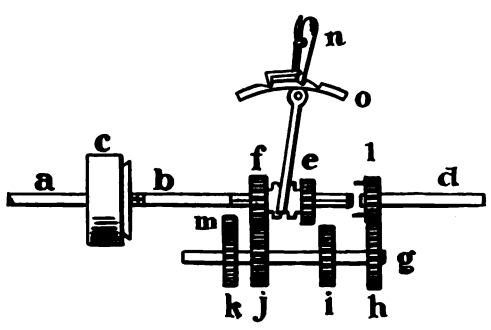


Fig. 45.—Sliding Gear

From this arrangement it is evident that the shaft *b* always will be driven by the engine, when the clutch *c* is engaged. To make *d* rotate, however, *e* and *f* either must be slid into such a position that the teeth of one of them mesh with *i, j* or *k,* on the lay shaft, or they must be moved to the extreme right. In the latter case holes in the face of *e* engage with studs on the face of *l*. Then *b* and *d* constitute practically a continuous shaft, transmitting the engine rotation directly to the driving wheels. The lay shaft, of course, rotates, being driven by *l* and *h,* but does no work. With a sliding gear in this position, the drive is said to be direct, and the vehicle will run at its highest speed. For a lower speed *e* and *f* are slid along until *e* meshes with *i,* in which position *e* drives *i,* and *h* drives *l,* the sizes of these several gears being such that *d* now rotates considerably slower than *b*. For a still slower drive, *e* and *f* are moved until *f* meshes with *j,* as shown in Fig. 45. The drive is now from *f* to *j,* and from *h* to *l,* and the gear relations are such that the rotation of *d* is very much slower than that of *b*. To reverse the vehicle, *e* and *f* are slid to the extreme left, until *f* meshes with *m*—only partially shown in the sketch, but at all times in mesh with *k*. The drive is now from *f* to *m,* from *m* to *k,* and thence from *h* to *l*. The extra gear wheel, *m,* causes the rotation of *g* to be the reverse of what it has been in the preceding cases, as well as much slower, and the vehicle backs up.

For manipulating a sliding gear, the gears *e* and *f* are thrown into the various positions by sharp movement of a lever, *n,* which is arranged to lock in different notches on a segment, *o,* one notch corresponding to each speed. It is necessary, before changing gears, always to release the clutch, *c,* so that the strains imposed upon the gear teeth, just as they commence to mesh, will be as light as possible. Even with this precaution, it is very easy by careless operation—failure to move the speed lever promptly and at the right moment—to chip or strip the teeth of sliding gears.

Planetary gears have been introduced to avoid the difficulty of manipulation that seems inseparable from the ordinary sliding-gear construction. The principle of the planetary gear is sketched in Fig. 46, in which *a* is the engine shaft, with the gears *b* and *c* fixed upon it. *b* is constantly in mesh with three gears surrounding it, only two of which, *ff,* are shown in the sketch. These three gears are carried on three lugs, projecting from the member, *d,* on which the sprocket, *e,* is formed. *c* is likewise in mesh with three gears surrounding it, two of which, *gg,* are shown. These gears, however, are carried on the member, *h,* through which the shaft, *a,* is free to rotate. Around the outside of *fff* and of *ggg* are the internal gear rings, *i* and *j,* with which they mesh. *i* is, like *h,* loosely mounted upon the shaft *a,* but *j* forms an integral part of *d*. *rr* and *ll* are brake bands surounding *i* and *h*. respectively, and by constricting one or the other of these, the shaft *a* is made to drive the sprocket *e* either forward or backward at a speed lower than its own rate of rotation. Thus, if *r* is constricted, preventing *i* from rotating, the gear wheel, *b,* rolls the gears, *fff,* around the inside of the gear ring on *i,* causing *d* and *e* to rotate in the same direction, but at a lower speed. This is, perhaps, more clearly shown at *A*, Fig. 47, in which the direction of rotation of the different parts is indicated by arrows, and in which it is evident that the centers of *fff,* through which the lugs of *d,* Fig. 46, project, must travel in the same direction as *b*.

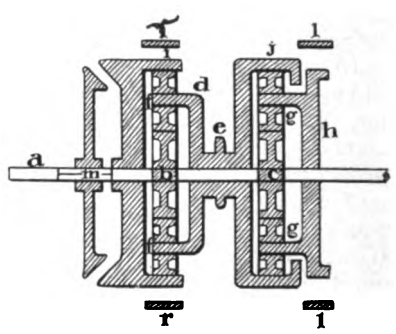


Fig 46.—Section of Planetary Gear

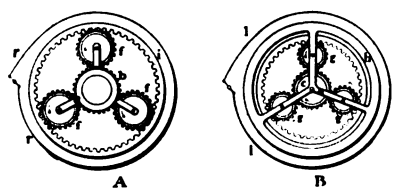


Fig. 47.—Plan of Planetary Gear

By constricting *l,* to keep *h* from rotating, *c* drives *ggg*. which in turn rotate *j,* and consequently *d,* in a direction opposite to that of the shaft *a*. This is shown in plan at *B,* Fig. 47, in which the direction of movement of the different parts is indicated by the arrows. The low speed forward and the reverse being thus provided in a planetary gear, it suffices to lock *a, i, fff* and *b* together by the clutch, *m*. Fig. 46, to cause the sprocket, *e,* along with the other members of the mechanism, to rotate as a unit with the shaft *a,* thus giving the high speed forward. The rest of the transmission ordinarily consists of a chain running from *e* to the driving axle. As all of the gears in a planetary gear are constantly in mesh, it is impossible to strip them by careless handling, but the fact that the number of gears is so considerable as to produce much friction, and the impossibility of securing a third ratio of forward speed without excessive complication. are considered objections.

Individual-clutch gears possess both advantages and disadvantages of the two types described in the preceding paragraphs. A typical individual-clutch gear is illustrated in Fig. 48, in which *a* is the engine shaft and *b* is a shaft geared or otherwise connected to the driving wheels. *c, d, e* and *f* are gears of various sizes, made fast to the driving shaft, while *g, h, i* and *j* are gears mounted loosely upon the shaft *b*

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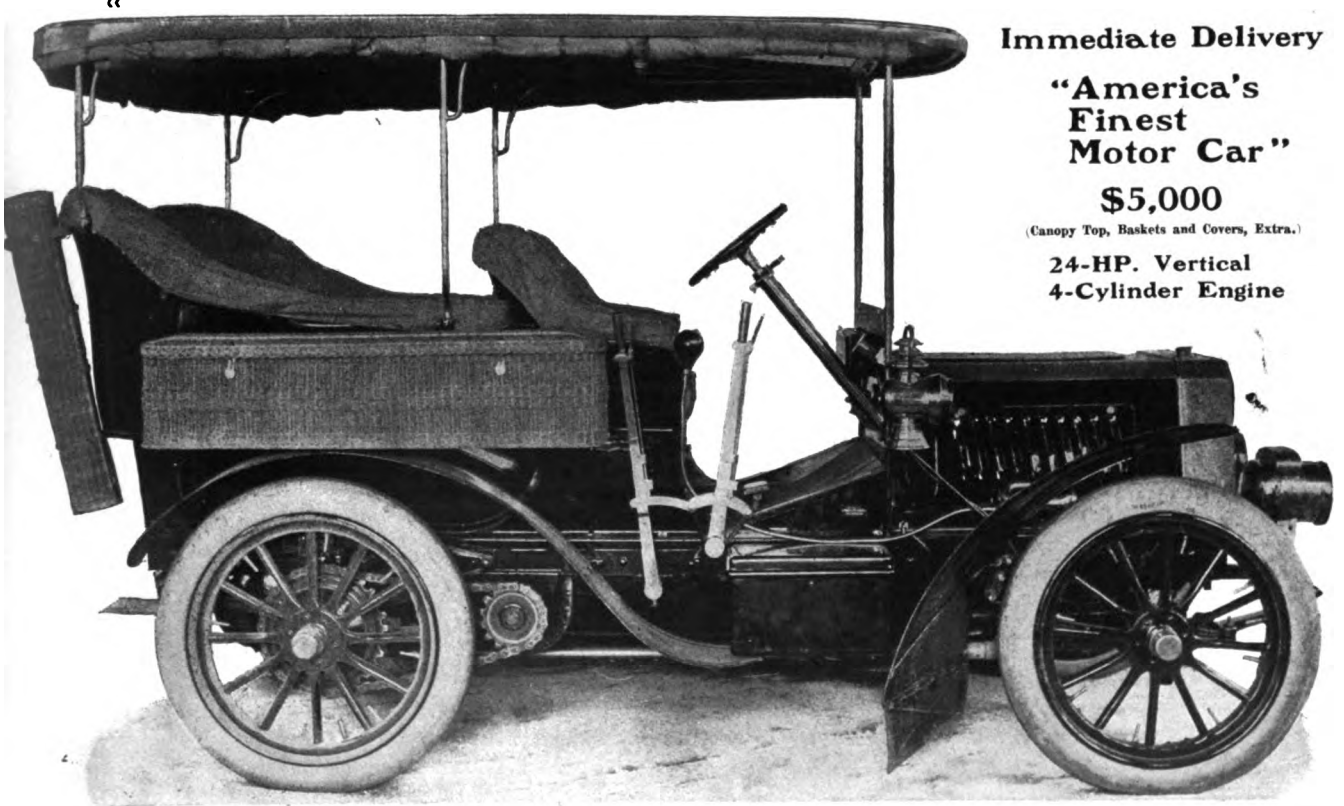
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(*Continued from page 42.*)

and meshing with *f, e, d* and *c,* respectively. These are arranged, however, so that any given one at a time may be clutched to *b* by means of the clutches *k, l, m* and *n*. The operation of a gear of this type is very simple. To produce the highest speed ahead, it simply is necessary to clutch *g* to *b* by means of *n,* in which case the drive will be from *a* to *b,* through *f* and *g*. The fact that *c, d* and *e* will drive *h, i* and *j* will not matter, because the latter will be free to rotate upon *b* without driving it, *k, l* and *m* being disengaged. It is thus simple to secure a number of speeds, forward or reverse, by employing a set of gears for each speed, the only limit being in the excessive friction set up even by the idly running gears when their number is too great.

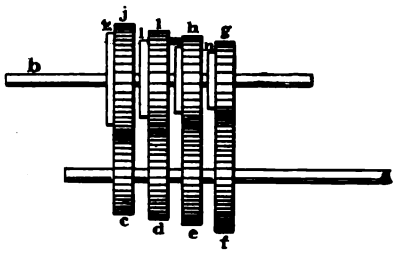


Fig. 48.—Individual-Clutch Gear

Friction and belt transmissions have been worked out by a few manufacturers, because they afford means of securing an infinite series of gradations from the highest to the lowest speed. The wear upon them being very great and their inefficiency for transmitting power so far have kept them out of common use.

Clutches are an important element in most speed-changing mechanisms, and, especially in sliding-gear systems, must be well designed for the work required of them. The commonest form of clutch is that illustrated in Fig. 49, in which *d* is the fly-wheel of the engine, carried on the engine mainshaft, *a,* and provided at *cc* with a conical recess in its face. The driven shaft is *b,* and carries at one end the light aluminum cone, *e,* which is faced with leather at *ff*. By forcing *e* into the fly-wheel—it being arranged to slide upon *d* for this purpose — the leather engages with the inner face of the fly-wheel, and the fly-wheel drives *b* as though it and *a* were one continuous shaft. Clutches of this sort normally are kept in engagement by a heavy spring, *g,* and released, when desired, by a pedal, *h; d* is, of course, squared where it passes through *e,* so that the latter cannot rotate upon it.

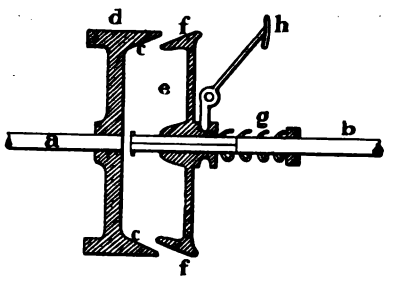


Fig. 49.—Cone Clutch

Miscellaneous Elements in Transmissions are required for various purposes.

Differentials are necessary to permit one driving wheel to rotate faster than the other when the vehicle is going around a curve. The outer wheel on a curve, especially on a short curve, obviously having to go a greater distance than the other, it follows that the two cannot be connected by a rigid axle without imposing great frictional and other stresses upon the tires, axles, etc. A typical differential is illustrated in Fig. 50, in which *a* is a section of the rear axle, attached to one rear wheel, while *b* is a section attached to the other rear wheel. At *c* and *d* are bevel gears, one attached to *a* and the other to *b*. Between these, carried by the ring *e,* are three small bevel pinions, two of which, *ff,* are shown. These mesh with *c* and *d*. The vehicle is driven by the motor through a gear or sprocket carried upon *e,* and it is clear that as long as the vehicle is going straight ahead, the pinions carried by *e* will not rotate, but will pull equally upon both *c* and *d,* with which they are in mesh, thus rotating both rear driving wheels at the same speed. When a curve is taken, however, either *c* or *d* will turn faster than the other to whatever extent one of the driving wheels turns faster than the other, without, however, preventing the engine from continuing to drive upon both wheels.

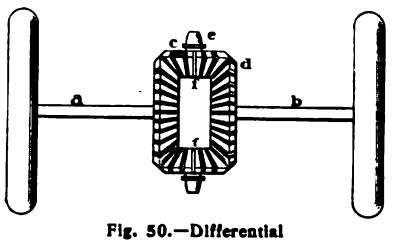


Fig. 50.—Differential

Universal joints are often introduced in transmissions, especially in propeller shafts, to provide the flexibility that is necessary in going over rough roads, etc. A universal joint is shown in Fig. 51. It consists simply of an +-shaped member, *a,* with two opposite points pivoted in the V-shaped yoke, *b,* on the shaft *c,* and the other two pivoted in the yoke *d,* on the shaft *e*. This arrangement permits the free rotation of *c* and *e,* when straight, as at *A,* as well as when like *B,* in which they are considerably out of line with each other.

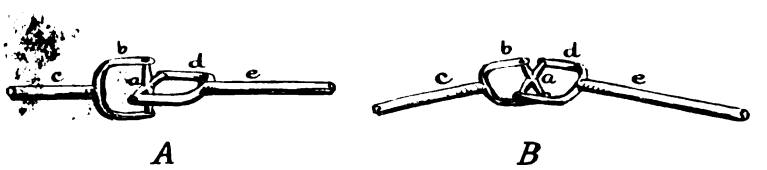


Fig. 51.—Universal Joint

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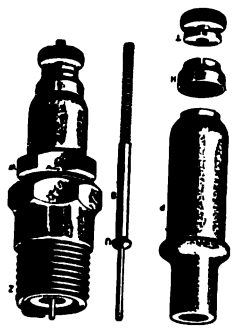

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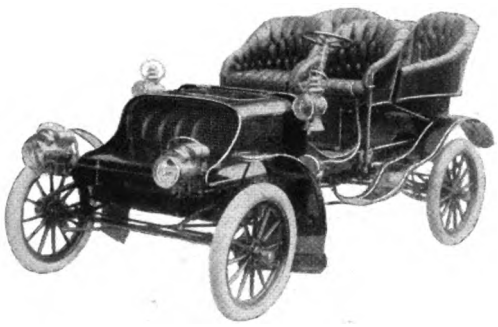
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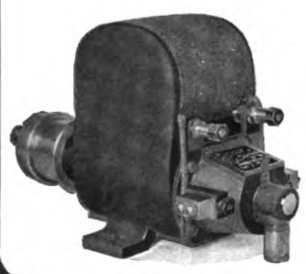
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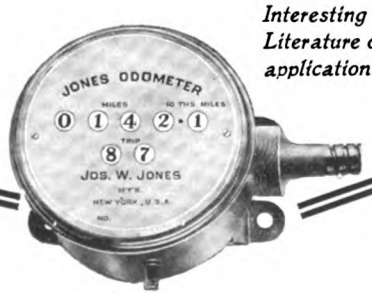
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I believe that the experiences of amateur motorists often are very profitable to others. I have driven a Model A Cadillac for the past thirteen months, and for the past five months—since I acquired a thorough understanding of the car—have had practically no troubles. On a four weeks' tour to the Knights Templar Conclave in San Francisco I did not have a particle of engine trouble, though a single-tube front tire that had been run 5,000 miles commenced to leak so badly that I changed to double tubes.

My experience teaches me that it is important to use absolutely the best grade of gasoline engine cylinder oil. I now know that almost all of my first seven months' troubles were directly traceable to poor cylinder oil. My spark plug was forever sooting and refusing to spark, and valves would become gummed and stick to their seats, and many of the other ills that follow upon the use of an unsuitable cylinder oil were largely in evidence. I believe at the time that I was using an oil that was suitable, but I now know that, though it was high-grade, it was anything but suitable. Therefore, it is my advice to every motorist to secure the best of mineral oil for use in his cylinders.

Animal and vegetable oils, however good for other purposes, are worthless at very high temperatures, and only the excellent mineral oils that are to be obtained, guaranteed to stand temperatures even as high as 800° F., can be depended upon.

As originally arranged, my car was equipped with two batteries of dry cells—4 cells in each battery—but it is my opinion, based upon my experience, that four cells are not enough. I secure the best results from six cells, when they are new, and after they have been used for a time I connect in the whole eight, in series. Eight new cells, of course, are to be advised against, for they are likely to burn out the coil.

Once a week I test all the cells with a volt-ammeter, and throw out all that show below five amperes. I find that good cells, when new, test about eighteen amperes, and a trifle above one and one-half volts. In use the amperage slowly drops, and with the car in use for an average running of fifteen or twenty miles a day, I am unable to derive an average service of more than six weeks from dry cells, and be certain of reaching home. My plan is to throw out the bad cells from time to time as my system of testing detects them and substitute new ones for them. Therefore, I never have eight cells of full strength in use. The sparking now is much more powerful than it used to be with four cells.

I do not use a voltmeter, because I believe that its indications often are deceptive; a battery may show good voltage and yet give out within an hour. The amperage is the best indication of a cell's condition, and its slow dropping gives ample notice that the cell should be replaced. No motorist should be without a volt-ammeter if he use dry cells.

I have tried many plugs, but have found only one that to me is satisfactory, and by combining the use of this plug with the use of good oil, and the battery arrangement just described, that I have had no engine troubles for five months.

Another modification of my car that I consider an improvement was the substitution of a needle tank valve for the gasoline faucet that originally did duty next the tank. By an extension of the wheel rod through the heel board, I can regulate the supply to the carbureter without difficulty. I have not touched the carbureter itself for five months, yet it works perfectly. I simply adjust the new needle valve to meet changes in weather conditions, etc., and the adjustment needed is very slight indeed, at that. When the gasoline is shut off I have only to make a quarter of a turn of the valve handle to secure the right supply. I have a notch made to indicate this distance, so it is an easy matter to secure uniform results. All danger of flooding the carbureter is removed, and I would not care again to be without the improvement. I get along very well with common stove gasoline, but always strain it.

I believe that almost any machine now on the market will prove satisfactory if intelligently handled. Of course, a car may wear out, but mine has run over 5,000 miles, and still is in good condition. The engine—cylinder, crankcase, piston, and rings—work as well as they ever did, and are but slightly worn. I have cleaned the cylinder only twice, and have never opened the crankcase except once, when I removed the small hand-hole cover for the purpose of oiling.

Trusting that my ideas may indicate the way to some motorist to free himself of troubles, I give them for what they are worth.

Marysville, Cal. CHARLES E. SWEZY.



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Through the Netherlands

(*Continued from page 30.*)

"Hell seemed emptied of its fiends." He tells the horrible story in his "Dutch Republic," Vol. III. Yet, within eight years, it had risen from its ashes, and was again a free city. The death of William the Silent brought a fresh determination to the Spaniards to recapture it, and this time the task was entrusted to the Duke of Parma. With incredible labor he bridged the River Scheldt, shutting in the city, as it

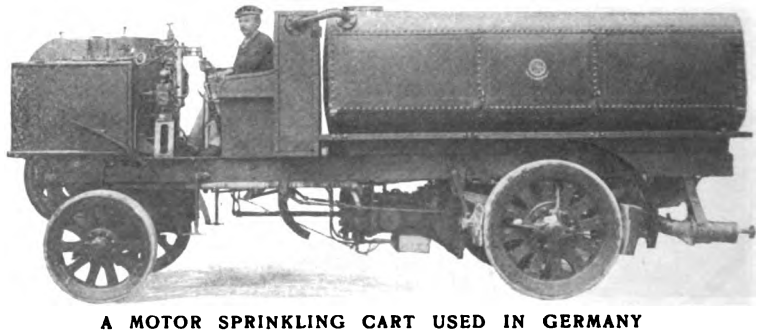


WHERE THE FIGHT RAGED HOTTEST ON THE FIELD OF WATERLOO

were, an island, and beleagured it in November, 1584. Its defence against all attack, and the counter efforts to destroy the bridge and forts, will ever be one of the memorable achievements in the world's military history. The story has been told in immortal prose by America's gifted historian, Motley, in his "United Netherlands," and I know no way to restore that eventful period better, than do as I did, put Vol. I in your pocket, and lie on the banks of the Scheldt, the site of its stirring pages and read it. Antwerp has had other sieges since, but they were trivial by comparison. To-day it is an antique, set in modern surroundings, with abundance of delight in its cathedral, its churches and their treasures, its Spanish castle museum, the like of which I know not, the Musee Planten, and its galleries of arts, its boulevards, and its gay people. Cold must the heart be and void of motion, that cannot revel in Antwerp's present glories, and feel for her past miseries. The home of Rubens is a city of artistic delight indeed.

But if Antwerp suffered under the Spaniards, her woes came upon her by way of punishment. Mechlin's, fifteen miles south of here, beautiful Mechlin, was selected by Alva, in 1573, in cold blood, as an example to other cities, to be sacrificed, and when its citizens, pleading for mercy, issued from the gates in solemn procession, with priest and banneret, and crozier and penitent psalms, they were given up to merciless massacre, and the city to sack. The murders, outrages, and wanton cruelty, and arson were incredible and indescribable. Yet to-day the beautiful tower of its cathedral catches the rising sun, and its bells tinkle out a benison on the hours, and its quiet streets are the homes of thrifty citizens, and the delight of pilgrims, and its lace is remembered in many lands. It is good to see Mechlin, and not to forget the story of its bondage to bigotry.

Fifteen miles still further south and high above the plain, high indeed, above the heights of the city itself, is the Palace of Justice of fair Brussels, and rich and rare are the places of interest in this little Paris; in many respects, I think, the better of the French metropolis. We have arrived here through many temptations on the way and more assail us to stop. Who for instance can tear himself away from the Grande place, with its toppling, zig-zag, guild houses, and its brocaded Hotel de Ville, flamboyant with all the generosity of which the Flemish art is capable. And yet they are but a parcel of those laying in wait for us, both in and out of the city, which the traveler will find outlined and mapped for him in local guide books with greater particularity than it is possible, or needful, for me to give. Of course one will take his motor car over the nearby field of Waterloo, the latest of the great battles fought in the cockpit of Europe, Belgium; now fortunately secured as a neutral zone, and long may nothing more belligerent than motor cars startle its highways, or the peace of its northern neighbor, the U. S. Netherlands. They have paid their price for peace.



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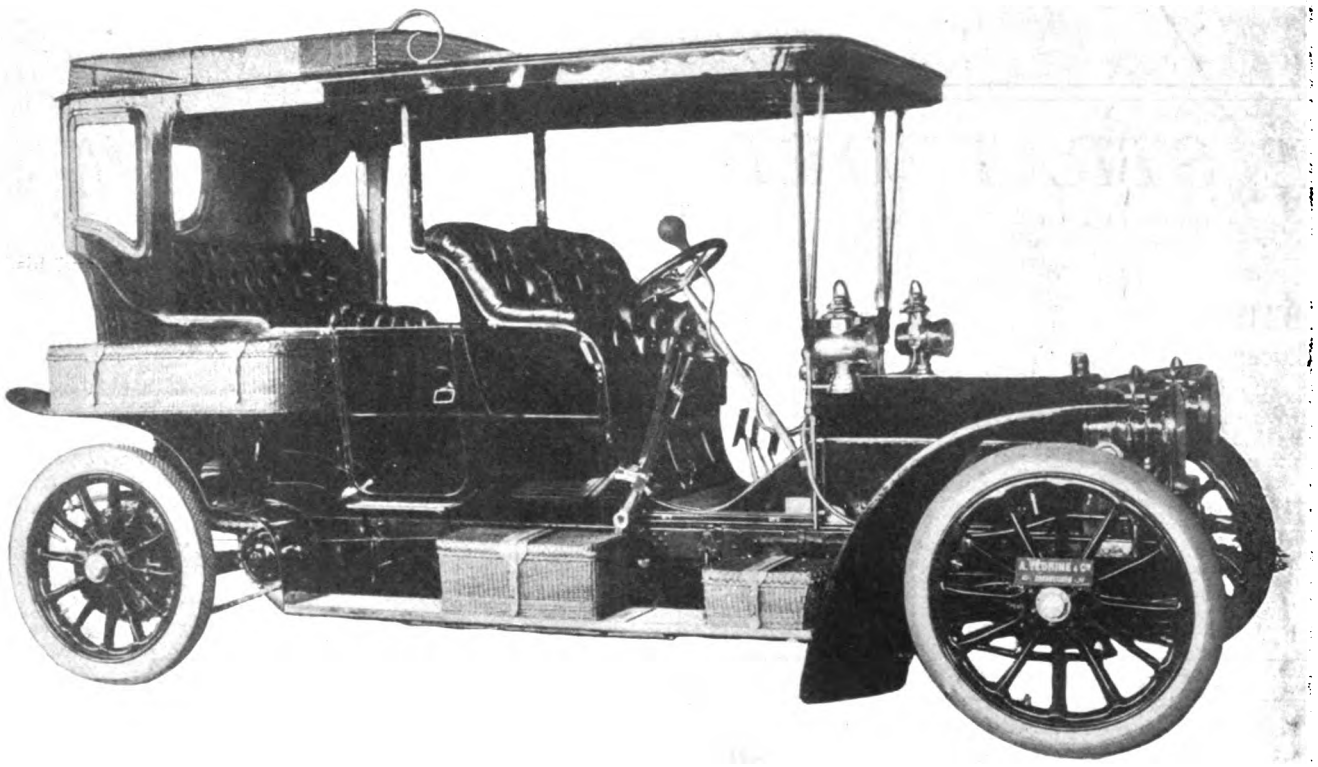
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Auguste's Motor Car

(*Continued from page 39.*)

have luncheon, and then go for a ride. Sunday dawned clear and warm, an ideal day. Julie, in her well-fitting black gown and pretty bonnet with the air of style that no Frenchwoman lacks, was finally induced to enter the red monster. Auguste took his place beside her and smiled condescendingly at the men around. He put his hand on the lever and gave a shrill honk from the horn. Slowly, smoothly, the heavy machine rolled out to the street, accompanied by a little shriek from Julie. Auguste looked at her with a lofty smile. Did she doubt his skill?

Up the Boulevard they sped, dodging cars, just missing carriages, Julie clinging wildly to the side of the machine. But for once Auguste was oblivious of her feelings. His spirit was soaring high in the empyrean; mundane things held no place there; even Julie paled in importance. The noble river, the radiant blue sky, the happy crowds, all lent their quota to his exaltation. As he turned into the hotel at Claremont and the boys ran out to take the machine while the people turned and stared, it was the proudest moment of his life. He felt that earth had no more to offer.

Julie uttered a sigh of relief as her feet touched the solid ground, and inwardly gave thanks that no accident had occurred. To Auguste the idea of an accident was unthinkable, and he looked regretfully after the machine. Then he led the way to a table overhanging the river. What joy to have the waiter hand him the menu. He knew well what to order, too often had he planned it all out. First a cocktail, then oysters, a clear soup, and a filet of sole. He sighed for the sole of France; this was truly but a poor substitute. Then the meat. No crude mutton or raw beef for him. A properly cooked grouse with crisp white celery and rich jelly was selected; also a bottle of champagne. He graciously allowed Julie to choose the sweet, and wound up with *café noir*. Julie's eyes opened widely at the extravagance, but experience had taught her the folly of remonstrating—at present.

Never in his life had Auguste imagined that he could be so happy. The hum of conversation, the gorgeously gowned women about him, the sense of ease and comfort, fairly intoxicated him. Julie chattered gaily away, intent, womanlike, in getting the most out of things once the plunge had been made. "Why spend money and regret it besides," she reasoned philosophically. So she ate, and drank, and enjoyed herself to the best of her ability, charming Auguste anew by her wit and vivacity. He seemed to swim in happiness, he irradiated it from every pore. Julie caught the infection and yielded willingly to his suggestion of a liquer for a finisher. She sipped her crême Yvette with a gay smile, admiring the color. After all, it was worth paying for such a day.

The time slipped unnoted by until Auguste was suddenly horrified to learn the lateness of the hour. *"L'addition,"* he demanded, sharply. The size of it appalled him. Could they have eaten so much? He examined it carefully and compared it with the bill of fare. Yes, it was exact. Never mind. He counted out the money, while Julie's eyes grew bigger, then threw down a dollar for the waiter. He would do things properly to-day. The waiter hurried gratefully to put on his coat, and Auguste waited grandly in the doorway until the car came around. He helped in Julie and climbed after her, with the pleasant consciousness that people were watching and whispering.

"They think I'm a millionaire," he mused, and his chest expanded with pride. Julie looked doubtfully at him. "Do you think that you can steer it home?"

"Steer!" he laughed scornfully and pushed a lever. To his horror the machine spurted ahead uncontrollably while he clung dizzily on. "Stop it!" screamed Julie. He reversed madly and the thing shot the other way—dangerously near upsetting. Julie was shrieking wildly and people were springing up from everywhere. With a great effort he tried to get hold of and pull the right lever. The motor car sprang forward and disappeared in a cloud of dust.

"Thank heavens I'm not in that!" breathed the waiter piously, as he hastened back to his table.

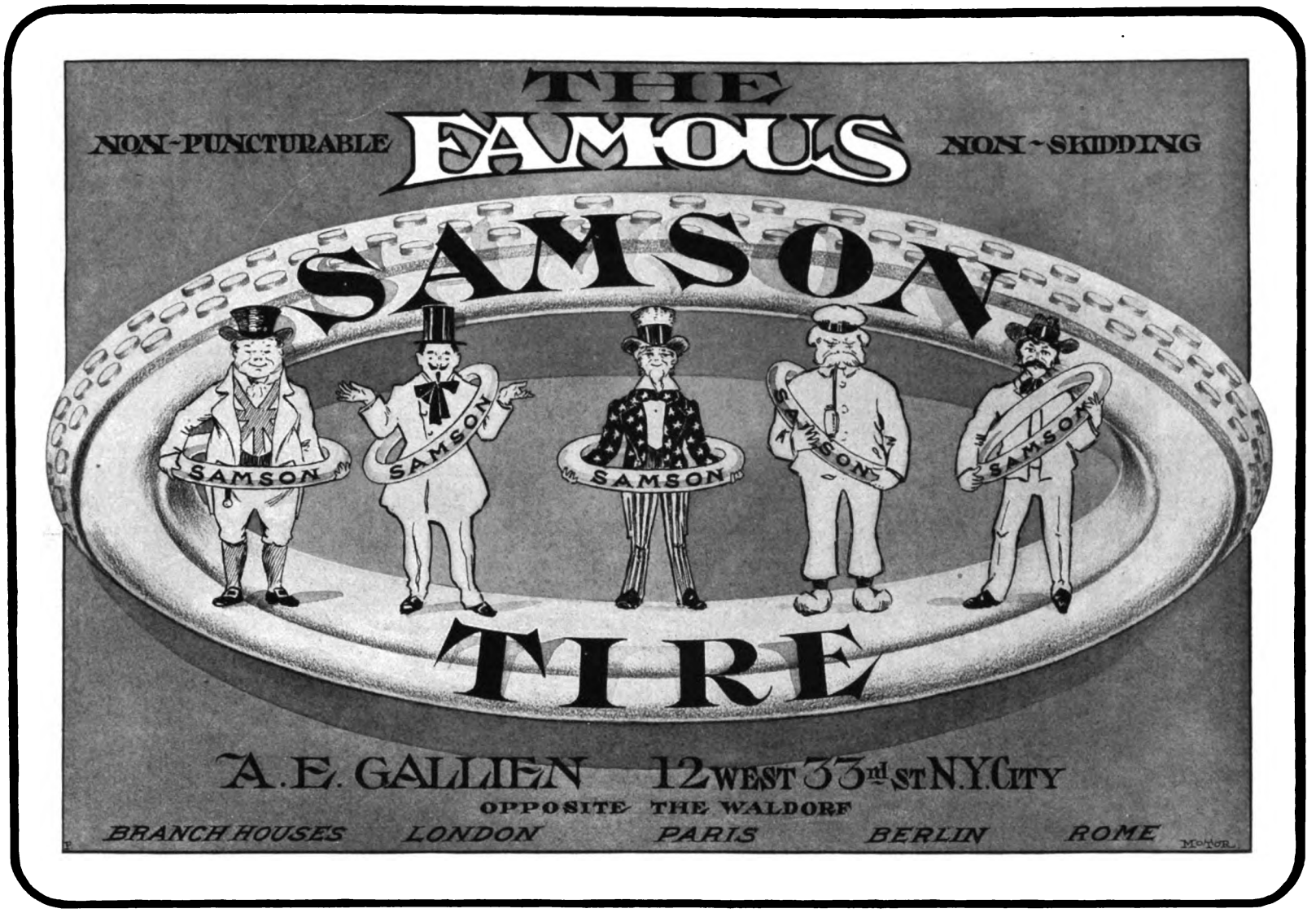
Down the Riverside flashed the motor car and Julie asked nervously could he not go a bit slower. But Auguste smiled wonderfully.

"Slower! Never! Faster if you like!"

Through the Park, out on Fifth Avenue, and then Auguste had an inspiration. He would go by the Waldorf. Some one would be sure to see him in his glory. He told Julie, and, perforce, she assented. He passed the street where he should turn in for the stable and raced on down the avenue, escaping by a miracle the other vehicles. What happiness! What rapture! At Forty-seventh Street a cabman whom he narrowly missed hurled violent language after him; at Thirty-ninth Street a pedestrian shook an angry fist. But he never heeded. And then came Thirty-fourth Street and the Waldorf-Astoria. He crossed the street safely, just grazing a trolley car and dashed by the windows of the big dining room. The temptation to look was too great. Yes, there stood Alphonse, and Gustave was near by. That hateful Gustave, who was always so supercilious! Auguste's brain reeled with excitement. The splendor of it! Unconsciously he pressed harder on the lever. There was a sudden shrill scream from Julie, a sickening crash, a horrible jar. The next moment both lay on the sidewalk while an excited cabman danced up and down with rage; a cabman who seemed gifted with a truly Homeric flow of invective. Auguste and Julie looked stupidly at each other, then Auguste struggled to his feet and felt carefully of himself. No bones were broken. But the motor car! The front was all smashed in, the wheels bent; there it lay, hopeless but still beautiful. The agonized tears sprang to his eyes as he regarded the beloved wreck. The cab was not so badly hurt.

A cry from Julie recalled him to her. Julie! Was she much hurt? He sprang to where she still sat on the sidewalk, rivalling the cabman

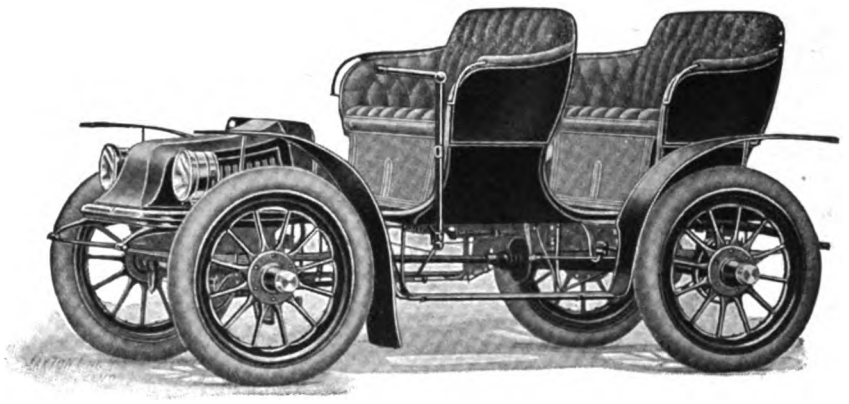
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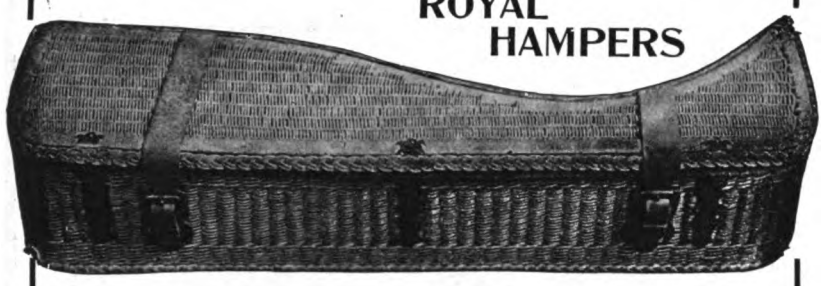
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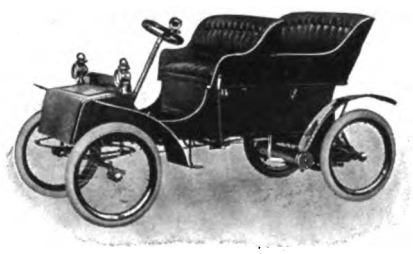
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with her language. "Animal, monster, assassin!" Auguste asked anxiously if she were hurt. Julie's eyes flashed.

"*Mais out.* Why not? My every bone is broken!" The bystanders laughed.

"I hope that you have an accident policy," remarked one heartlessly. Julie looked up quickly. "Have you?" she demanded. Auguste shook his head, bewildered.

"Imbecile! Help me up."

The crowd which so rapidly collects in New York surrounded them, the hotel windows were full of grinning faces. Auguste clinched his hands in despair. "Tell me you're not really hurt, Julie," he begged. Julie, painfully rising to her feet, turned on him fiercely:

"No thanks to you if I'm not!" The poor girl was sore and bruised; she had been badly frightened most of the day, and, worst of all, she had seen their precious money squandered. Her store of accumulated wrath broke forth.

"Am I hurt! A fine question to ask when you have almost killed me! And you think I will stay fiancée to such a—a—" for a moment words failed her. "A man who throws out his money so foolish; who cares so little for me. It is well that my eyes are opened in time Monsieur. I have the honor to wish Monsieur good day." Auguste listened piteously, stunned by this new calamity. When she ceased, he sprang forward.

"Julie," he began, beseechingly, "ah, Julie!"

"Good day, Monsieur," returned the inflexible Julie. She turned her back and flounced indignantly away, leaving Auguste staring blankly after her, just as Delafield, who had been in the café, hurried out. Delafield looked at the crowd, at the excited cabman, at the retreating figure of the girl, at the nearing policeman, and at the wreck in the street. Then, in spite of himself, he laughed.

"Shifty Sadie has done it this time." But the sight of the policeman tapping Auguste on the shoulder brought to Delafield a sudden sobering sense of responsibility.

"Poor devil, it's really my fault." He spoke to the policeman, then turned to the cab driver.

"I will be responsible for the damage. Here is my card."

The cabman looked ugly, but decided to drop the complaint, and the policeman, with a wink at Delafield, turned away. That young man carried Auguste to the café and gave him a bracer. Then he put the dejected object in a chair.

"Now tell me all about it."

The recital was decidedly incoherent and took some time, but Delafield managed to listen without a smile. When it was all over he looked gravely at Auguste.

Auguste shook his head.

"I do not know."

"But you can't leave the machine there on the street!"

A despairing shrug of Auguste's shoulders was the only answer. Delafield thought a moment.

"Have you no idea at all?" he asked finally.

"Ah, Monsieur. I am a poor man. My savings are almost exhausted already. I can hardly pay its board much longer, and as for repairs—" he waved an expressive hand. "If it had not been for Monsieur's kindness about the cab." His tone was quite hopeless. "And Julie! She, too, has left me!"

"The company might give you something for the machine," suggested Delafield, slowly. "But they would not be likely to give much." Auguste's gloom, if possible, grew even deeper. "But," went on Delafield, "I am sure that Mr. Hastings' offer still holds good."

"But the machine is broken!" cried Auguste, fearfully.

"Not badly. I looked to see. The $250 that Mr. Hastings offered would cover that I'm sure. And you would get a thousand, or even, perhaps, a bit more."

Tears of incredulous joy shone in Auguste's eyes.

"Oh, Monsieur Delafield, your are too good, your are a saint, a—" he began brokenly. Delafield checked him impatiently.

"Here, shut up, it's nothing; do stop."

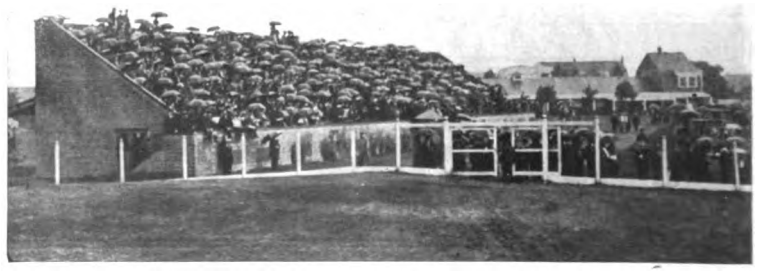
"But Monsieur does not understand," persisted Auguste. "With all that money I could buy the little shop. And then Julie might forgive me. You think so, yes?" entreatingly.

Delafield smiled.

"I think it very likely," he said, cordially. He drew out a notebook and made a short memorandum, then turned to Auguste. "I will see that you get your shop," he promised. "And I think I can safely say that Julie will be not only willing but anxious to forgive you. Such at least is my belief."

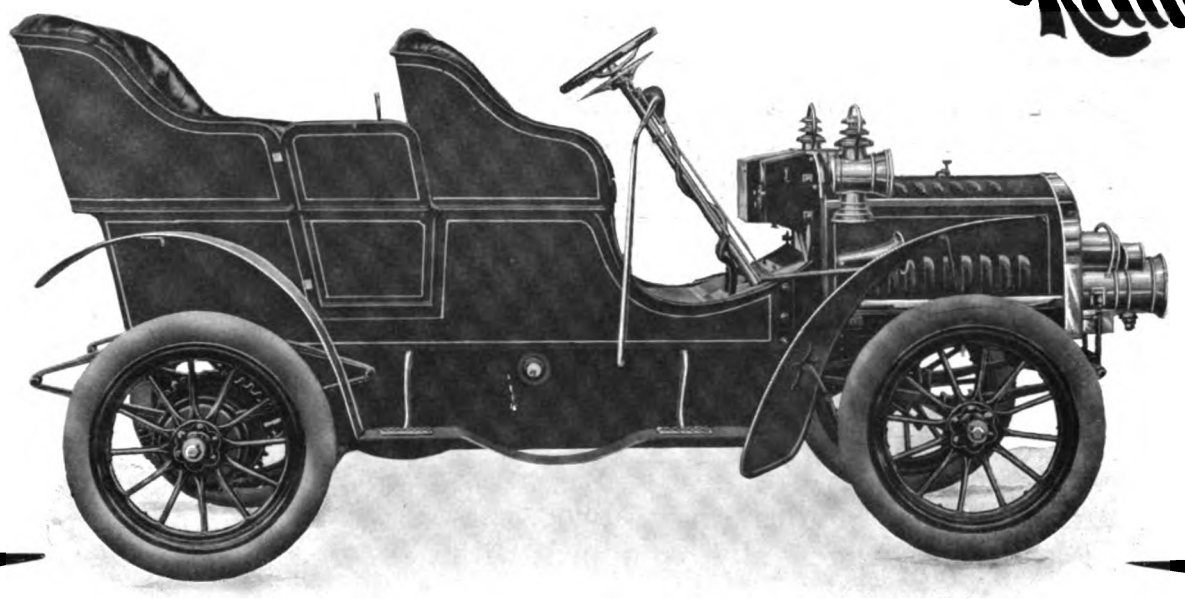
Julie was, and her dearest anticipations are realized in the little shop where she so proudly orders Auguste about as the customers jostle each other to buy her delicious bread and cakes. And Auguste, cherishing fondly the memory of that one glorious, ineffable, forever unforgettable day of paradise, obeys meekly.

And that is why you no longer see him at the Waldorf.



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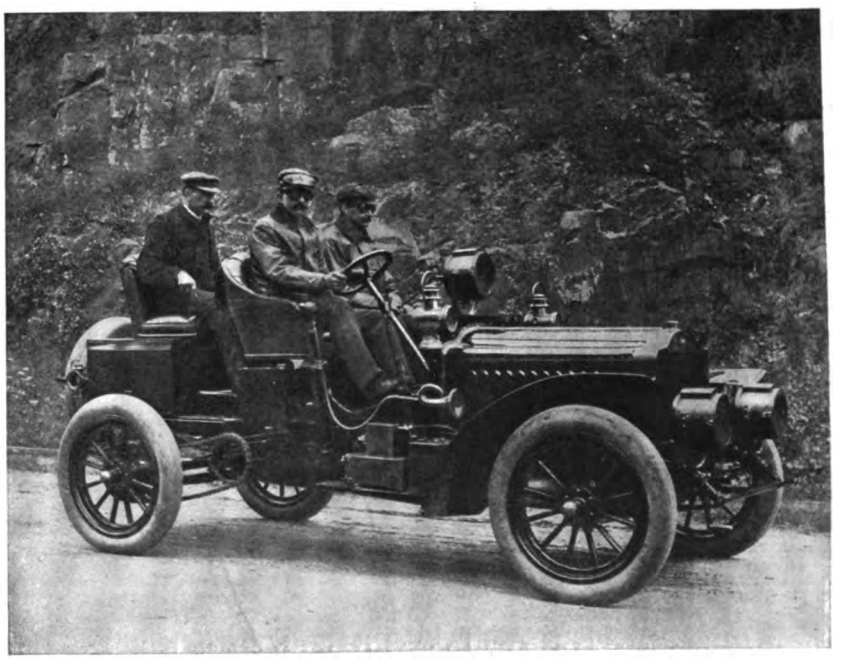
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This record demonstrates what can be done with a regular stock COLUMBIA under all the miscellaneous conditions of cross-country touring—roads good and bad, level, hilly and mountainous—weather of all varieties. Through the Catskills 144 miles were made in a driving rain. The performance offers strong contrast to achievements of specially built cars on race tracks or selected roadways and means a great deal more to the prospective purchaser of an automobile.

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Another Great **VICTORY!!** is Ours

Michelin Tires again won a double victory over all others at the Vanderbilt Cup Race on Long Island Course, Saturday, October 8th, 1904

Heath, Panhard, First—Michelin
Clement, Clement-Bayard, Second—Michelin

Of eighteen contestants over a distance covering three hundred miles only two cars finished and they were fully equipped with

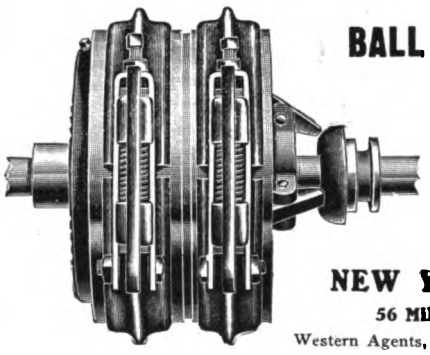
MICHELIN TIRES

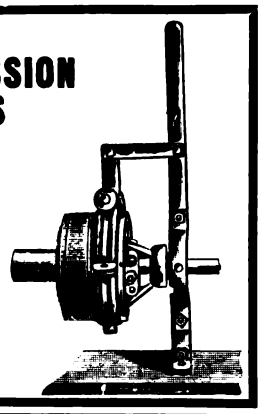
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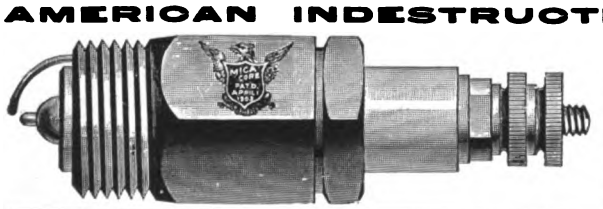




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AMERICA'S FINEST WHISKEY
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See our World's Fair Exhibit, Agricultural Bldg., Block-70.

THE MOTORIST'S CATECHISM

Q. What are you?

A. I am a motorist; that is to say, I drive a motor car on a road.

Q. You ought to be ashamed of yourself. And pray what is a road?

A. A road is a space, greater as a rule in its length than its breadth, and occasionally provided with a surface suitable for vehicular traffic.

Q. Can you tell me what the uses of a road are?

A. Primarily as a playground for dogs and cats, a *crêche* for village children, a chicken run, and a lounge for foot passengers.

Q. What, then, is a footpath?

A. A footpath is a track running alongside the road and used principally by perambulators.

Q. Has a road no other uses than those you mention?

A. Secondarily it is used for traffic.

Q. In traffic, which is the safer—the motor car or the horse-drawn vehicle?

A. The motor car, because it can be stopped more quickly and steered more accurately.

Q. Which does the more injury to the road surface?

A. The horse-drawn vehicle.

Q. Which pays more for being on the road?

A. The motor car.

Q. These points, then, being considered, what is your duty as a motorist?

A. Generally speaking, to apologize for being alive.

Q. Are not, then, the rules of the road and the rights enjoyed the same for all?

A. In theory, but not in practice. In practice the monarch of the road is generally a drunken laborer in charge of a haycart, asleep on the top of it, and incapable and obscene when awakened.

Q. Do you know of any reason for his special privileges?

A. It is not for motorists to complain, but I do not.

Q. Would not the police interfere with him?

A. They might; but as a rule they are too busy timing the speed of motor cars.

Q. How many speeds are there?

A. There are three. The first is ten miles an hour, which is what you say; the second is eighteen miles an hour, which is what you go; and the third is twenty-seven miles an hour, which is what the three shilling stop-watch says.

Q. Why is it always twenty-seven miles an hour?

A. Because the police have got used to that number. One gets used to everything except motor cars.

Q. Is there any other privileged person besides the intoxicated laborer?

A. There is the dog.

Q. What is the dog?

A. The dog is the friend of man.

Q. In what way does he show this friendship?

A. By frightening children and horses, by upsetting and destroying bicyclists, by biting inoffensive strangers, and by disseminating rabies and other disgusting diseases.

Q. Have you nothing to say for the dog?

A. The well-broken and well-kept dog is a delightful animal, but not more than one dog in a thousand will answer to this description. In any case a dog of this kind is not here considered because a properly broken dog is not allowed to interfere with and endanger traffic on the road.

Q. What is the attitude of the motorist toward the dog on the road?

A. The motorist spends a great part of his time in trying to save fools from the result of their own blunders. This applies as much to dogs as to the human variety.

Q. What is the popular belief as to the motorist's attitude?

A. The popular belief is that the motorist takes so much pleasure in running over dogs

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A $3000.00 WINTON 1ST PRIZE

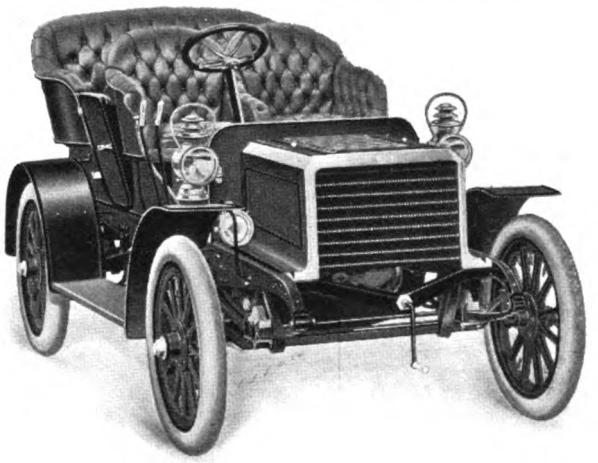
MOTOR for October contained a prize contest in which a $3,000.00, four-cylinder WINTON motor-car was to be given as the first prize to the subscriber making the closest calculation of the records that will be made at the Ormond-Daytona race meet in Florida next January. There were also 499 other prizes offered—500 prizes in all.

This contest has been declared by the Post-Office to be a lottery, and must, therefore, be discontinued. We started the contest in good faith, and in equally good faith, but with more certain knowledge of the outcome, we offer the following contest and also the same prizes:

Below are the pictures of 10 different makes of standard motor-cars. Can you name them? Many people think they can recognize the make of any car at sight. This is an opportunity for you to test your skill and also to win

A $3000.00 Four-Cylinder Winton Motor Car FIRST PRIZE

WINTON Cars possess a unique excellence guaranteed by the WINTON Motor Carriage Co.'s long experience and its great productive facilities.



Four-Cylinder Winton, Price $3000.00

WINTON Cars are built under the personal supervision of Mr. Winton. The 4-cylinder WINTON represents a high standard of automobile value.

Name the Cars Below



1



2


3



4



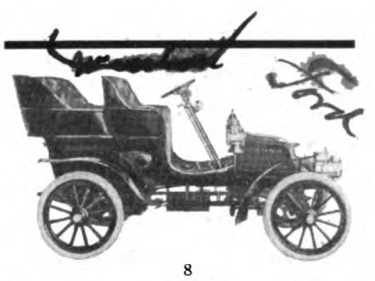
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RULES GOVERNING THE CONTEST

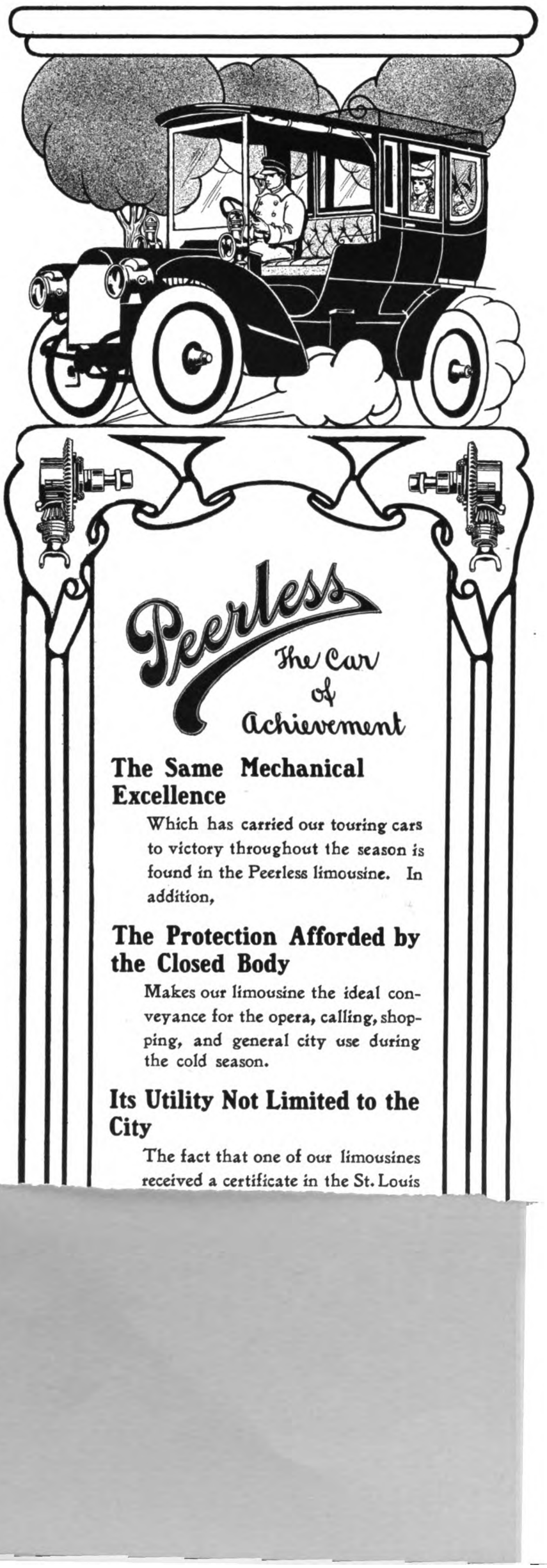
Write the name of the cars in the coupon on this page and mail it to-day—not later than the last day of November.

The December and January issues of MOTOR will contain pictures of more cars which it will be necessary for you to try to name.

The first prize—the $3,000 WINTON—will be awarded to the subscriber for MOTOR naming the largest percentage of the cars correctly. The second prize to the one naming the second largest percentage, etc.

In case of ties another contest will be arranged, or the prizes will be divided by mutual arrangement.

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that he will risk an expensive car and possibly his own worthless life in order to do it.

Q. Is this popular belief founded on reason?

A. On the contrary. It is founded on the statements of the secretary of the Canine Defence League.

Q. Is it ever possible to avoid a dog?

A. The dog may always be saved, but at some sacrifice. It may, for instance, be necessary to run your £500 car into a stone wall and kill yourself, your wife, your Aunt Jane, and a few children who happen to be on the footpath at the time.

Q. And should you do this?

A. So we are at present being instructed.

Q. And would you do it?

A. Well, I'll think about it and let you know later on. I cannot stop at present as I am just off to initiate a human defence league, with a special clause in its articles by which motorists shall be entitled to rank as human beings.

—Barry Pain, in *London Sphere*.

A NEW CHICAGO-NEW YORK RECORD

Again the motor car has demonstrated its suitability for long-distance, cross-country travel, at good average speeds, even over such poor roads as generally prevail in this country. This statement is inspired by the remarkable performance of a 30-35 horsepower Columbia touring car, with tonneau removed, which covered the 1,108 miles from Chicago to New York in 58 hours 45 minutes, total time.

The start was made from the Chicago Automobile Club headquarters at 2 A.M., October 4, and from that moment to the finish of the run the car was driven night and day. Bert Holcombe, Lawrence Duffie, Harry Sandall and Eddie Bald—the famous ex-bicycle champion—took turns at the wheel, one pair going ahead by sleeping car, while the other two coaxed the record-breaking machine over the heart-breaking highways.

The route was by way of South Bend, Ind., Toledo, Cleveland, Erie, Pa., Buffalo, Elmira, Binghamton, Kingston, Weehawken, and New York City.

No mechanical troubles were experienced, and but one tire shoe was replaced—a new mark for motor car reliability and tire mileage thus being set for the course in question.

The record superseded was that of a 40-horsepower Apperson car, which made the distance in 72 hours 46 minutes, breaking the previous record of 76 hours, made by a Columbia over a year ago. Holcombe, Duffie and Sandall drove on this previous run, and doubtless much of the credit of their present success is due to the earlier experience.

Five or six hours at least were lost by running on wrong roads, so it appears that the record is as good as 52 or 53 hours, actual running time—an average of over 21 miles an hour and half the speed of the average railway train between the two cities. Considering the hilly, crooked and poorly maintained character of most of the highways traversed, this speed is a phenomenally high average.

At present there is little to induce the average motorist who seeks a pleasure trip to tour between the two metropoli of the Western Hemisphere, but this journey is one to be judged less by present performance than by future possibilities, the former, of course, suggesting the latter. A time is not far distant when many of the millions of the two great cities, totalling a tenth of the whole nation's population, will find a ready and comfortable means of travel in the modern motor car, and the splendid highway that will bridge for it the thousand miles between Lake Michigan and the Atlantic. From five to ten millions of dollars will build this road, and $500,000 a year will maintain it perpetually—sums aggregating a mere bagatelle in view of the tremendous results they will bring, not only to the termini of the road, but to the communities and the countryside along it.

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Fur Automobile Coats

Since the very advent of the motor car we have made a specialty of everything for the autoist but the auto—everything to insure convenience and comfort. In numbers and character, we maintain the most comprehensive and distinctive collection of automobile garments of fur, cloth, leather and rubber, which this or any other country affords.



No. 5200.
Long Fur Coat for Women.

SO thoroughly does this model serve its purpose—so absolute is the protection which it affords, that we have deemed this coat of sufficient importance to deserve presentation in eight different furs. The shawl collar may be turned up and the wide revers folded across the chest in extreme weather, Silk loops and frogs serve instead of buttons. There are two vertical pockets. Length 50 to 54 inches, in sizes 36 to 44.

a. Of Manchuria Dogskin Fur, lined with quilted sateen, $30.00
b. Of Manchuria Dogsin Fur, lined with quilted sateen. collar of Nutria Fur,k - - - - - - - - - - - - - - $35.00
c. Of Russian Calf Fur, lined with quilted sateen, collar of Opossum Fur, - - - - - - - - - - - - - - - $47.50
d. Of Wild Cat Fur, lined with plaid flannel, collar and cuffs of Opossum Fur, - - - - - - - - - - - - - $55.00
e. Of Squirrel Fur, excellent quality, lined with quilted sateen, - $75.00
f. Of Nutria Fur, lined with quilted sateen, - - - - $75.00
g. Of Muskrat Fur, lined with quilted sateen or plaid flannel, - - - - - - - - - - - - - - - - - - $100.00
h. Of Nutria Fur, highest grade, lined with quilted sateen. $125.00

No. 900.
Long Fur Coat for Men.

AN element of style characterizes this double-breasted model. The deep shawl collar sets close to the neck. The coat follows the line of the upper body from the shoulders to the waist, from which the skirt graduates in bell form. Two vertical pockets. Length 50 to 52 inches, in sizes 38 to 44.

a. Of Black Manchuria Dogskin Fur, lined with sateen, - $18.00
b. Of Russian Calf Fur, lined with sateen, - - - - - - $22.50
c. Of Natural Manchuria Dogskin Fur, shawl collar, and cuffs of Nutria Fur, lined with quilted sateen, - - - $30.00
d. Of Russian Calf Fur, with collar of Opossum Fur, lined with plaid flannel, - - - - - - - - - - - - - - $35.00
e. Of Wild Cat Fur, collar and cuffs of Opossum Fur, lined with plaid flannel, - - - - - - - - - - - - $45.00
f. Of Russian Calf Fur, collar of Opossum Fur, lined with plaid cloth, - - - - - - - - - - - - - - - - $60.00
g. Of Hair Seal Fur, lined with quilted sateen, shawl or notched collar, - - - - - - - - - - - - - - - - $65.00
h. Of Hair Seal Fur, collar of Opossum Fur, lined with plaid cloth, - - - - - - - - - - - - - - - - - - $75.00
i. Of Nutria Fur, superior grade, lined with quilted sateen, $75.00
j. Of Natural Otter Fur, highest grade, lined with satin, $275.00

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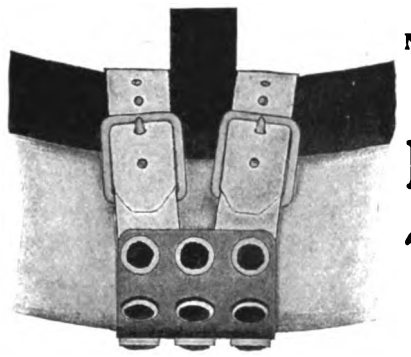
NOVEMBER 10th, 1904

If you desire to dispose of your car write for form giving information about the entering of cars. | **If you are a prospective buyer send for the preliminary catalogue.**

Arrangements have been made whereby W. D. Grand will act as purchaser for any out of town people who find it impossible to get here, provided they select the machine they want from the catalogue and remit a deposit of 10 per cent. of the price they are willing to pay. If the car can be bid in at the price given it will be accomplished. In the other event the amount of deposit will be returned.

CARS ON EXHIBITION NOVEMBER 8th AND 9th

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POST AUTO TIRE GRIP

(A Tire Protector)

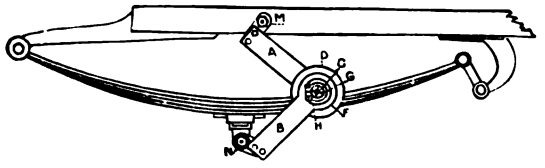
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The Winning of a Cup

(*Continued from page* 18.)

upon adversely in a long-drawn-out session at the Garden City Hotel in the evening. Clement charged that he had been delayed three minutes at Hicksville, the officials not interpreting the rules as he understood them in regard to making repairs while in the control. The charge of these three minutes against him in his net time was what threw the young Frenchman into a state of mind and resulted in his protest at the finish. Since it was shown at the hearing that Heath did not do anything of the kind, even though it was alleged that other contestants had been guilty, nothing remained for the commission except to leave the laurels of victory with Heath, and Clement accepted the situation like a good sportsman.

Concerning Heath, one inclines to the belief that his popularity will never be very extensive. In fact, a tale that found its way into gossip several days after the race contained apparently truthful statements that Heath had been purposely misinformed by supposed friends that he was many minutes ahead of his nearest rival, when as a matter of fact his advantage was exceedingly meagre. Awakened to the falsity of the information, Heath drove like a madman in the closing two rounds. It was said that the misinformation came from a coterie, the members of which desired to see a Frenchman win rather than the Panhard car driven by an American.

The tire companies took a great interest in the race, and as a result Heath received $1,000 and Clement $500 from the Michelin Co. Possibly there were a few nails distributed on the course by malicious people, though several machines suffered severely on the Jericho turn after the soft coating of the road had been forced back and the rough stones uncovered.

Is the race worth the time and expense and trouble and danger? is a question that will be variously answered. Apparently, Nassau County itself desires the event, and if local option holds good in motor racing, as in many other things, that same county will seek the event next year.



HAWLEY TELLING MR. THOMAS HOW IT HAPPENED

Looked at from the standpoint of a maker, I would simply quote one whose company thus far has had naught to do with racing, E. R. Thomas, of Buffalo: "That one race did more for motoring than half a year's racing under ordinary circumstances. America will see more of these races, and it will be a splendid thing for motoring in general everywhere."

Plainly unprepared for the contention with the finished racing product of the leading European makers, the American manufacturers, nevertheless, entered the contest rather than that the trade of this country should not be represented, knowing full well that the advantage rested with their foreign commercial rivals. And it was a very creditable showing that they made, three of the five American cars that started being numbered among the finishers. Of Germany's five, only two survived the day; of the six French machines, two weathered the struggle, running first and second; and only one of the two Italian cars really started and that one met with bad luck. All credit to the Pope-Toledo, the Packard, the S. & M. Simplex, with the Royal not forgotten for its plucky effort. Another year—well, another year will tell its own story, assert the American racing enthusiasts.

Of the Long Island participants, one writer sums up their part in the perilous game in this manner: "All went into the race fully cognizant of its danger, and of their own free will; that they played with Death, and if Death won, it lay between them and him. This sounds harsh; but it is true."

Continuing, this same writer, Porter Emerson Brown, refers to a situation which might be prevented another year, possibly by the employment of citizen soldiery. Mr. Brown asks:

"Why the casualties of the day were not counted by the score instead of by the unit is something that passeth all understanding, at least all

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Raising the Curtain

In the near future this curtain will be removed and disclose the latest product of the world's greatest Automobile designer

MR. R. E. OLDS

The new cars will be manufactured by the REO CAR CO., of Lansing, Mich., of which Mr. R. E. Olds is President and General Manager, and whose initials furnish the name.

That the cars will be strictly high-class and embody many new features in Automobile construction, no one who is familiar with the past efforts of Mr. R. E. Olds will doubt.

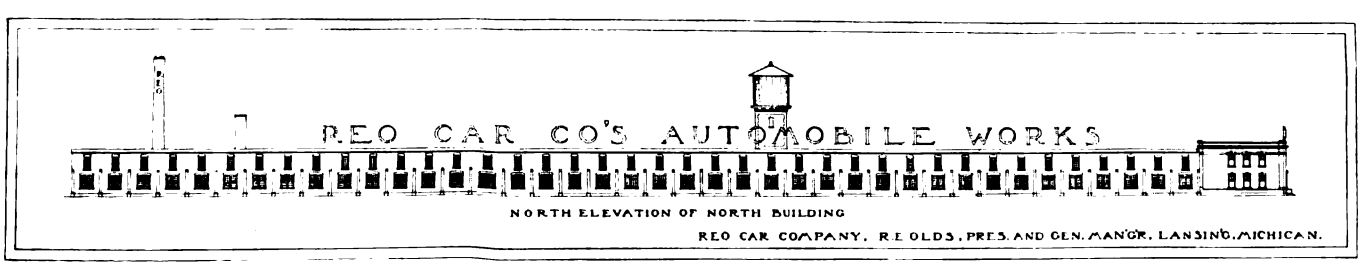
We want live agents, and those making early application will be first in line for consideration.

The entire sales management of the REO MOTOR CAR CO. will be in charge of Mr. R. M. Owen, with Eastern offices at No. 138 West 38th Street, New York.

REO MOTOR CAR CO.

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ACME MOTOR CAR COMPANY

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MOTOR BOOK will tell you where to go and how to get there. A complete set of touring routes around new York; a list of 9,000 automobile owners; automobile and motor cycle records; automobile laws. PRICE, $2.00. MOTOR, 1789 Broadway, New York.

The Winning of a Cup

(*Continued from page* 18.)

of mine. At the time of the Paris-Madrid race, the world spoke scornfully of the lack of intelligence of the French peasant. According to my notion the only difference between the spectators of the Paris-Madrid race and those of the Long Island is that the latter were more fortunate in not having an accident to a machine at a crowded place and possibly were a bit quicker on a side step."

There will be plenty of time before the next race to learn whether it is desired, and whether the use of the highway for one day constitutes a violation of the law.

THE ORMOND-DAYTONA MEET

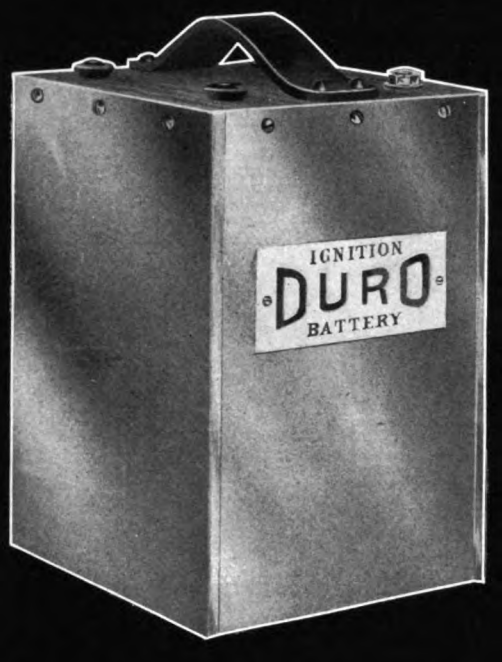
January 23 to 28, inclusive, are the dates selected for the third annual meet on the famous Ormond-Daytona course. Such a gathering of motor-driven flyers as is assured on the Florida beach will eclipse anything ever seen in motor sport in this country or abroad. That the Vanderbilt mile record of 39 seconds is destined to be shattered, is a prediction that finds many believers. High-powered cars of both foreign and American manufacture are being specially prepared for this notable inning of racing on a course that cannot be duplicated anywhere in the world.

Following the beach racing at Ormond-Daytona will come a motorboat regatta at Palm Beach, dating from February 1 to 3, inclusive. This promises to be an affair of equal international importance.

MOTOR CALENDAR

To Dec. 1	Motor-Vehicle and Motor-Boat Exhibitions at St. Louis World's Fair.
NOVEMBER	
FRI. 18 to Nov. 26	Stanley Cycle and Motor Show, Agricultural Hall, London, England
SUN. 20	100-Kilometre Trials, Algeria
THURS. 24	Hill-Climbing Contest, Eagle Rock Hill, New Jersey
DECEMBER	
FRI. 9 to Dec. 25	Salon d'Automobile, Paris
MON. 26 to Jan. 2	Reliability Trial, Motor Union of Western India
JANUARY, 1905	
WED. 11 to Jan. 24	Importers' Automobile Salon Herald Square, New York
SAT. 14 to Jan. 21	N. A. A. M. Show, Madison Square Garden, New York
SAT. 14 to Jan. 24	Automobile Salon, Brussels Belgium
MON. 23 to Jan. 28	Ormond-Daytona Tournament Florida.
MON. 23 to Jan. 28	Show, Philadelphia, Pa.
FRI. 27 to Feb. 4	Automobile Show, Crystal Palace, London, England
JAN. and FEB.	Motor Show, Bombay, India
FEBRUARY	
WED. 1 to Feb. 3	Motor-Boat Races, Palm Beach Florida
MON. 4 to Feb. 11	N. A. A. M. Show, Coliseum Chicago, Ill.
MON. 13 to Feb. 18	Show, Detroit, Mich.
SAT. 4 to Feb. 19	International Motor Show, Berlin, Germany.
SUN. 5 to Feb. 19	Automobile Week, Nice, France
WED. 15	Turin Salon, Italy
TUE. 21 to Mar. 9	Sportsman's Show, Madison Square Garden, New York City
MON. 27 to Mar. 11	Show, Cleveland, Ohio
MON. 27 to Mar. 4	Show, Toronto, Canada
MARCH	
FRI. 3 to Mar. 11	Motor-Cycle Show, Liverpool England
SAT. 4 to Mar. 18	Show, Boston, Mass.
MON. 6 to Mar. 11	Show, Buffalo, N. Y.
SAT. 18 to Mar. 25	Motor Show, Agricultural Hall London.
MON. 27 to Apr. 5	Show, Washington, D. C.

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DURO

STORAGE BATTERIES

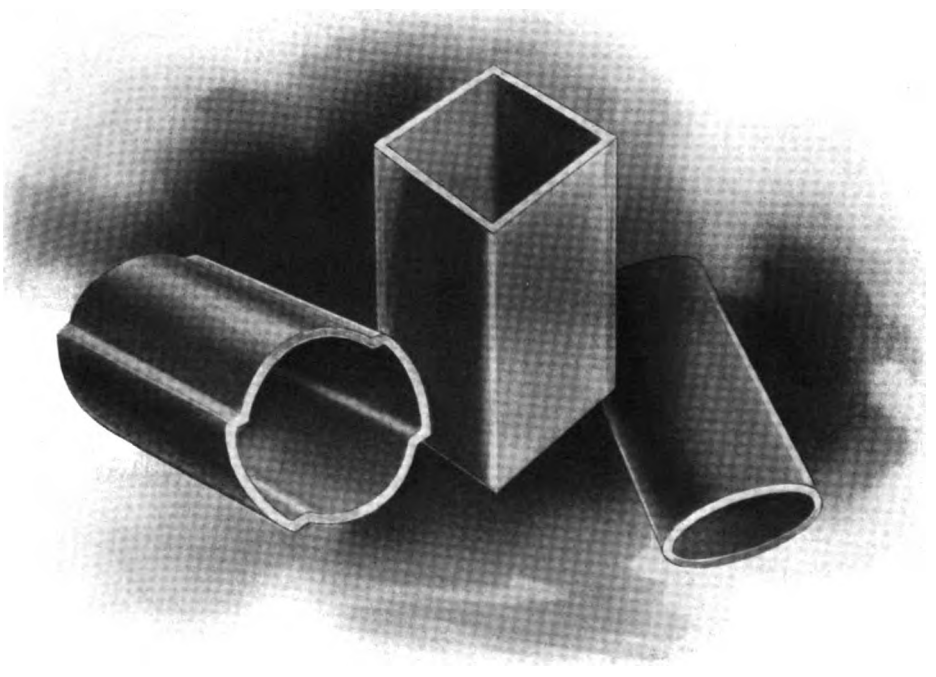
Users of DURO Accumulators are assured of a mileage guarantee obtainable in no other way

CHICAGO BATTERY COMPANY
1421 MICHIGAN AVENUE
CHICAGO

This Means--
Both Automobile and Metal Covered Ignition Batteries

WRITE US

P MOTOR



Whatever We Make We Make Right

Our tube business causes us no worry, because the "good trade" seeking quality recognizes the value of

Standard Seamless Tubing

We've established the confidence of the buyer by furnishing good tubing promptly—hence our orders.

The progressive manufacturer is sure to be interested in our

Electric Welding

If you're unacquainted with the merits of welding this way, our "What I Learned" booklet describes it, and illustrates the work done. You should get it—it's both interesting and instructive.

Last, but not least, we mention the pride of our product

Standard Rims

the rims the wise buyer buys because of the all-round satisfaction they give on wood, steel or wire wheels, pneumatic or solid rubber tires.

Western Representatives, McCLERNAN & ORR, Chicago

THE STANDARD WELDING CO., Cleveland

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½ = 1

Which means that a half-dollar, when buying a LONDON AUTOMOBILE TOP, is equal to one dollar when buying any other top. The LONDON TOP for $45 is better than the other one you can buy for $100.00.

Send for booklet.



LONDON AUTO TOP CO.

1771 B'way, NEW YORK.

Tops, Dust Shields, Slip Covers.



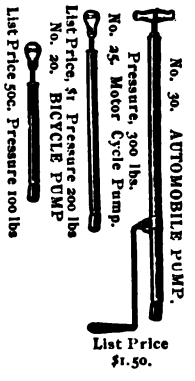
THE *display* of an advertisement is a *very important* element; probably our imprint in company with your design would greatly enhance the value of your space—we think it would at any rate.

Publicity Press
150 Nassau Street, New York

THE PATENT AUSTIN PUMP

In placing this pump on the market we believe we have the best air pump ever offered. It does away with all screw-thread attachments and rubber hose, thereby giving a direct passage of air from pump to valve and so preventing loss of air. It fills an ordinary tire quickly, and easily attains a higher pressure than any other pump. It will fit any valve; is simple in construction and use.

These good points are obtained from the use of a **Patented Flexible Rubber Coupling** in the **bent end** of the pump, which makes a perfectly air-tight connection with any tire valve.



WM. J. BRIDE & CO.
READING, MASS.

OUR COUPE CANOPY

THE DOCTOR'S FRIEND

We furnish the

Most Complete Line of Tops

on the Market

Buggy Tops, Folding Cape Tops, $45.00 up. Extension Tops, $65.00 up. Coupe Canopies (see cut). Full Canopy Tops, $65.00 to $400.00. Limousine Tops, $250 up.

This is the time you NEED A TOP MOST

THE AUTO TOP CO.
OF NEW YORK
590 West 30th Street

ABSOLUTELY FITS ANY RUNABOUT

Fully Brass Trimmed, $100.00
Enameled Stanchions, 75.00

In ordering give make, date and model of car. Special jobs to measure, 20 per cent. down. Immediate Delivery.



Motoring in Society

(*Continued from page 37.*)

much about his people. In fact, their object has always been to restrict, rather than to supply information, since their power and influence depend to a great extent upon the degree of ignorance in which they are able to keep him concerning the affairs which relate to their respective offices. There are lots of things that Don Alfonso would see in a motor trip through Spain which would necessarily escape his attention when making one of those official royal progresses to which he has been until now restricted, progresses during the course of which he is surrounded by a perfect army of dignitaries and officials who are careful that he should see only what it is intended that he should be allowed to see. It would be very different were he to travel with three or four hundred attendants by motor, free to choose his own route, concerning which nothing would be known with any degree of certainty beforehand. The goggles, the visored cap and the coat used for motoring would serve as a species of modern Haroun-al-Raschid disguise. His identity thus concealed, Don Alfonso could make himself acquainted with many abuses, many sources of popular discontent and causes of misery before disclosing his rank, and would obtain a knowledge of his country and of his people such as no other ruler of Spain has ever before enjoyed.

* * *

That motor cars have dealt a very serious blow to coaching, it is no longer possible to deny. Until this year it was confidently asserted that there was room for both, and that drag and motor could flourish side by side. Spring, Summer and Fall of 1904 have shown this belief to be a fallacy. Several road coaches which formerly were wont to run out of New York, to Lakewood and to other places in the neighborhood, have been abandoned this year. The parking places for drags at the races and open air suburban horse shows are now entirely monopolized by motors, coaches being few and far between, while private four-in-hands on the Avenue are nowadays so rare as to cause people to turn round and stare as if at some antiquated mode of conveyance. Indeed, it is a question whether New York will ever witness again another coaching parade, for the last one, which took place in the Spring, was so manifestly attended as a matter of duty rather than pleasure that it is very doubtful whether it will be possible to assemble again a sufficient number of drags in line to warrant a meet of the club. In Europe conditions are still worse from a coaching point of view, and in France the coaching season has been the most disappointing and discouraging ever known since four-in-hand driving was taken up as a popular form of sport.

* * *

To the Gaikwar or King of Baroda, one of the most powerful and up-to-date of the native sovereigns of British India, belongs the credit of organizing a race of an altogether new order for motors. Not speed, but reliability will be taken into consideration in the award of the prize, which is to take the form of a magnificent cup set with jewels, in addition to a sum of money. The course extends from Delhi to Bombay, a distance about as great as from New York to Chicago, and the winner is to be the owner of the car which makes the entire journey with the least number of unauthorized stops, the timing between any two places being made on a basis of twelve miles per hour as a minimum and thirty miles per hour as a maximum speed. Lesser prizes will be presented for the car best suited for district work in India, absence of noise, etc. The object of the race is to bring before the Indian public the fact that motor cars are eminently suitable for use in India; to induce tourists visiting the country to bring their cars with them and thus take advantage of the magnificent roads and perfect weather which are invariably assured to the traveler between the months of October and March; and to call the attention of the manufacturers of motors to the particular wants of India in the matter of motoring. In no portion of the British Empire, save in England itself, has the motor "caught on" to such an extent as in India. The native princes, who look askance at the railway, are displaying an altogether extraordinary enthusiasm over motor cars, and while horses and elephants will assuredly maintain their place in the land which is the "Home of Pageants," yet the use of the "Devil Wagon" bids fair to become universal among the richer classes of the natives throughout Hindoostan.

* * *

When visiting J. Pierpont Morgan at his country place at Highland Falls, the attention of the Archbishop of Canterbury was called to a notice stuck up conspicuously at the entrance to the grounds to the effect that motor cars were barred from the estate. The season for this prohibition, as explained to the English Primate, was that a couple of years ago Mrs. Morgan and Miss Ann Morgan narrowly escaped losing their lives owing to the foolishness of the chauffeur of a visitor who had come in her motor to make a call. The chauffeur, instead of slowing down on entering the grounds, increased his speed, which he did not diminish even when catching sight of a carriage preceeding at a leisurely pace a little way ahead. The motor dashed by and the tooting and the dust scared the horses and they bolted. Only the most strenuous work of the coachman prevented the overturning of the carriage on the brink of a deep ravine between Highland Falls and Fort Montgomery, and Mrs. Morgan sustained so severe a shock that she did not recover from its effects for weeks.

* * *

While there is no foundation for the story according to which the Pope intends to order a runabout for his own use in the driveways of the immense Vatican Gardens, it is perfectly true that he has caused several motors to be purchased for the use of those members of the Vatican court and household whose official duties take them beyond the

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JUST ISSUED—NEW EDITION

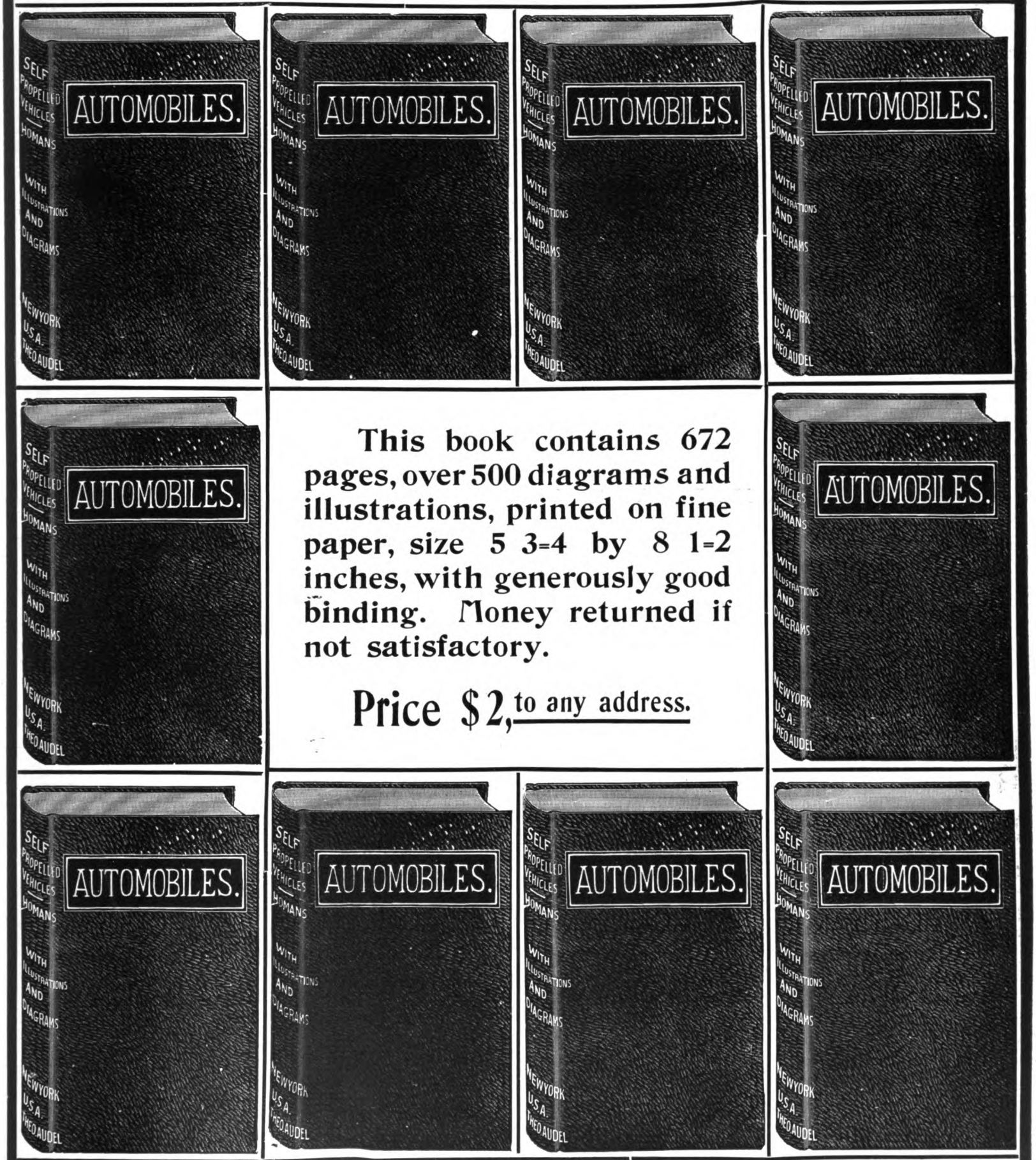
$2.00 "Homans' Automobile Educator." $2.00

THIS new revised work, which has been prepared to meet the increasing demand for a thorough treatise on the subject of motor carriages, cannot fail to have a wide circulation and prove of immense value to all persons interested in the subject. In the course of the 672 pages, it presents all the important elements of automobile construction in clear, concise and popular language, readily comprehensible by any reader, but at the same time goes into all matters with a thoroughness that render it a useful handbook even to skilled engineers and machinists.

As to the method of presentation, one remark is in place: since the advent of the motor carriage has created a widespread interest in matters mechanical, bringing many persons who lack previous acquaintance with the mysteries of engine construction and operation into intimate daily contact with practical problems and situations, it is essential that such a treatise as the present one should give the facts with as few technical terms as possible. In this respect the best book on the subject is somewhat like the best automobile carriage—the simplest.

The treatise on the gasoline engine cannot fail to prove valuable to anyone interested in explosive motors, which are daily coming to the front as the readiest and most convenient source of power.

The price of this popular edition is $2.00, and as an insurance against accidents, caused by ignorance of the principles of operation—of which there are a lamentable number recorded every day—no one interested in the subject can afford to do without a copy of this timely volume.



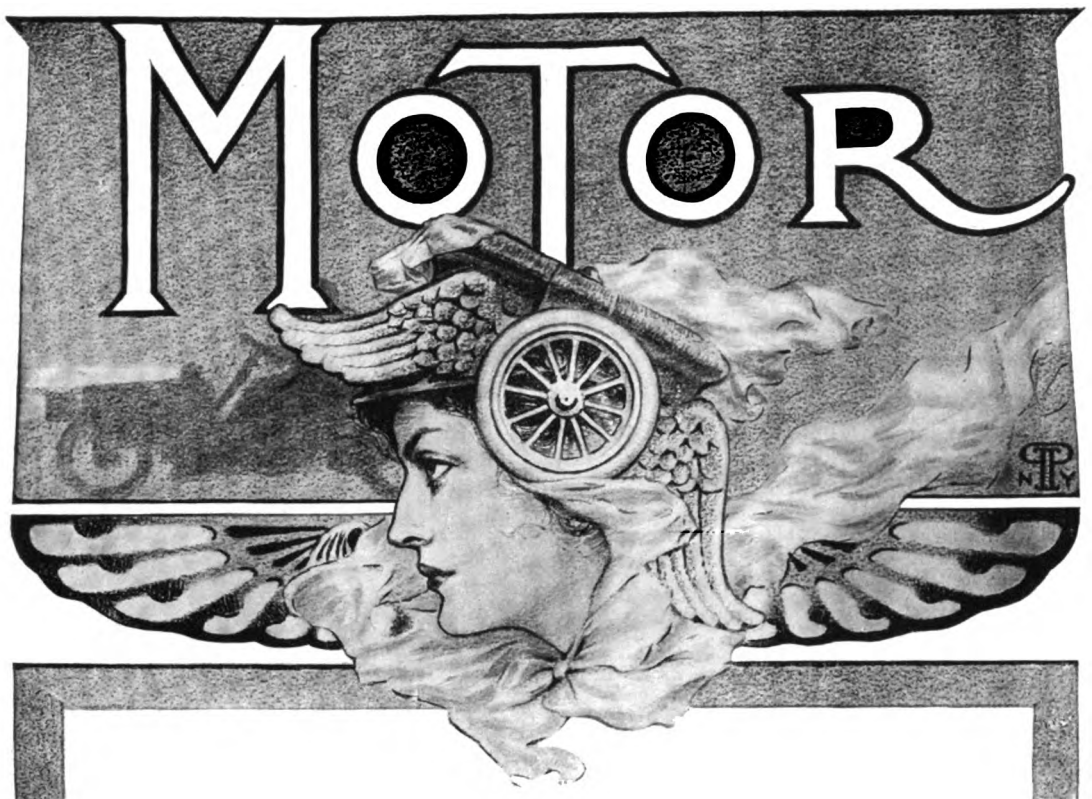
This book contains 672 pages, over 500 diagrams and illustrations, printed on fine paper, size 5 3-4 by 8 1-2 inches, with generously good binding. Money returned if not satisfactory.

Price $2, to any address.

SEND FOR LIST OF CONTENTS AND SPECIMEN PAGES.

THEO. AUDEL & CO., Publishers, 63 5th Ave., New York City

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YESTERDAY TODAY AND TOMORROW

The first issue of MOTOR—October, 1903—had but nineteen advertisements. It was a good start, but merely the start of a boy who, being sure of himself, outruns all other boys.

The last issue of MOTOR—October, 1904—contained over one hundred and fifty advertisements, a number which certainly shows the approval of advertisers in the motor-car industry. That was a good start for MOTOR's second year, the start of a record runner who, having defeated all competitors, is determined to make new records.

To-day MOTOR carries more advertising than any other publication devoted exclusively to motoring. There is always a reason why advertisers recognize a publication in such a material way, and that reason is that the publication is a success from the readers' viewpoint. And MOTOR's circulation success is certainly phenomenal.

During the past year we have been leaving no stone unturned to obtain more and more circulation. MOTOR is infected with a circulation gluttony, for which there's no cure and of which it doesn't wish to be cured. MOTOR's circulation is greater than the combined circulations of any other two motoring publications. That, too, is a record—the record which advertisers have recognized so materially.

MOTOR aims to have more readers than all the others combined by this time next year. That is aiming very high, but at the present rate of increase it will come about.



walls of the Papal domain. Formerly heavy lumbering carriages drawn by black horses, were used for this purpose. But now motor cars have taken their place, most of them being of the coupé or landau type. Thanks to this, all horses, save those employed for garden work, have disappeared from the Papal stables, which once harbored a couple of hundred steeds; and the Noble Guard, diminishing in numbers, now goes afoot, and remains a cavalry regiment only in name.

* * *

The Duke of Connaught's accident while motoring from Edinburgh to Gosford Castle last month, was remarkable as constituting the first instance of any serious mishap to Old World royalty since it took to motoring. This is all the more surprising when one recalls that royal personages are not bound down to the same legal restrictions in the matter of speed as less exalted mortals, and usually drive at so fast a pace as to endanger, not only their own lives, but those of the other occupants of public thoroughfares. The Duke seems to have come to grief through a very common fault on the part of chauffeurs, namely, that of putting on speed when darting from behind vehicles going in the same direction without taking into consideration the fact that the conveyance in front of them may have concealed until then some wagon or cart coming from an opposite direction. The Duke's chauffeur, whose progress had been impeded by a tram car, at length got past it, but ran into a heavy wagon coming toward Edinburgh, and which had until then been hidden from sight by the car. That the Duke was not killed is a miracle. But his injuries seem to have been quite serious, especially in view of the fact that he is a man now going on toward sixty years of age.

MARSTON.

IN THE ADIRONDACKS: AN AUTUMNAL AUTOMOBILE SPIN

I.

As down the road our automobile speeds,
Awaking echoes in the darkling vale,
In twilight poised, a crescent waning pale
Glints in the river curving through broad meads;
With emerald beam the fireflies dance and gleam;
Incessant chirps the cricket's merry note;
On mirrored ponds the lolling lilies float;
And over rocks the cascades leaping stream.

II.

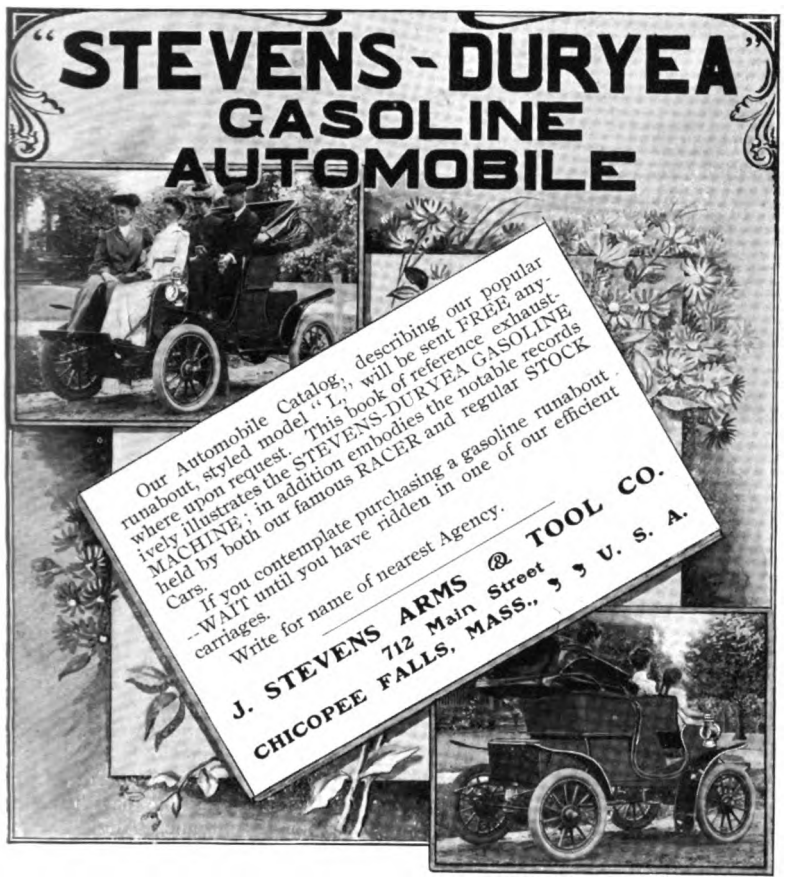
Through cottage casement in a ruddy mist
A crooning mother lulls her babe to rest;
Within a farmstead, wholesome in their zest,
The fieldhands at the evening meal assist;
And teamsters homeward bound, on grinding skids
Down hillroads grating, hail our car beneath;
The fragrant scent of fir, of pine and heath
Breathes from the wood where stride the katydids.

III.

Those winter harbingers reiterate
That "Katy-did-it! Katy-did! She-did!"
While owlets hoot in dark recesses hid,
And frogs their vesper chorus celebrate.
From Gabriel's hospice on the upper plain
The angelus now undulates the breeze;
We downward coast 'neath overarching trees,
And skirt the lake till home is reached again.

—[Charles Leonard-Stuart, in Forest Leaves.]

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Auto-Talks

NUMBER TWO.

Our first "Auto-talk" we devoted solely to *value*.

In this, the second, we will touch upon the subject of construction. While all the good points of Autocar construction cannot be covered in a talk of this length, we want to bring to your attention some of the features of the Autocar which are so obviously advantageous that they must be appreciated by the veriest novice.

The illustration above shows the easy accessibility of the Autocar motor. It is never necessary to crawl under an Autocar or to remove the body. To reach the motor you have only to lift up the hood in front. To get at the transmission case simply lift up the floor between front seat and dashboard.

The mechanism of the Autocar is exceedingly simple; this applies to both the working and the steering parts. The novice will not find in the Autocar the appalling intricacy of parts that he may have come to believe inseparable from an automobile.

The engine in all Autocars is of the two cylinder horizontal opposed type, which means that there is no noticeable vibration. The engine of the four-passenger car develops 12 actual horse power, that of the runabout 10 actual horse power. The engine is oiled automatically, is water cooled, and the number of parts is reduced to a minimum.

The autocar transmission is ball-bearing. The car is gear-driven—no chain. Ample brakes are provided.

The double spark coil used in the Autocar is of the very best and most approved type. The gasoline tank holds ten gallons, which, on good roads, is sufficient for 200 miles.

All parts of the Autocar, with the exception of bodies and tires, are made in the Autocar shops. They are made by men who have been building successful automobiles for eight years. Every part is made in harmony with every other part, so that the entire mechanism operates in perfect unity.

We know that none but the best materials go into Autocar construction, and we know that the workmanship is expert and thorough.

Autocar bodies are made for us by a leading body maker, and are finished like the finest coaches.

The Autocar has a speed from 3 to 35 miles an hour. Extreme ease of control is attained through an unusually simple arrangement of levers.

The price of the Autocar Runabout, shown above, is $900; the Autocar Four-Passenger Car, $1,700.

In our next month's talk we will tell you of the Autocar's performance. Our booklet, which we send free, gives full description of the Autocar's construction, and addresses of our dealers throughout the country. You should have it.

THE AUTOCAR COMPANY, Ardmore, Pa.

Member Association Licensed Automobile Manufacturers.

The Locomobile

GASOLENE TOURING CAR

EASILY THE BEST BUILT CAR IN AMERICA



Chicago, Oct. 5, 1904.

The Locomobile Co. of America, 1354 Michigan Ave., Chicago, Ill.

Gentlemen:—My four-cylinder Locomobile Gasolene Touring Car is entirely satisfactory. Received it May 19, 1904, and today the Odometer indicates that it has run 7,260 miles. Except tires, we have had no trouble with the machine—it has not even been in the shop for repairs—think it is now running smoother than ever.

I take great pleasure in recommending the Locomobile to my friends.

Yours truly, JOY MORTON.

The *Locomobile* Company of America

BRIDGEPORT, CONN.

NEW YORK, 76th St. and Broadway **PHILADELPHIA, 249 N. Broad St.**
CHICAGO, 1354 Michigan Ave. **BOSTON, 15 Berkeley St.**

Member Association Licensed Automobile Manufacturers

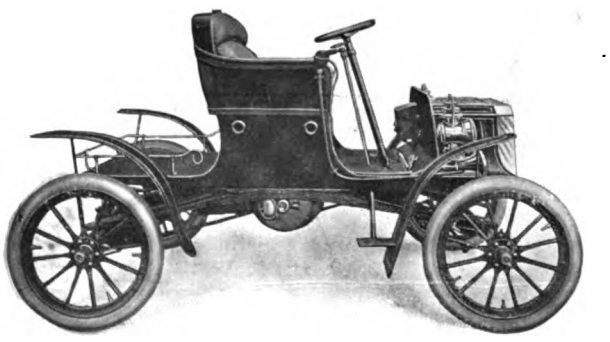
HAVE THAT RELIABLE FEELING

EXPERIENCED WHEN DRIVING A

BUCKMOBILE

FAVORED BECAUSE OF THEIR

POWER
CONSTRUCTION
STICKTOITIVENESS
AND
COMFORT ON AMERICAN ROADS



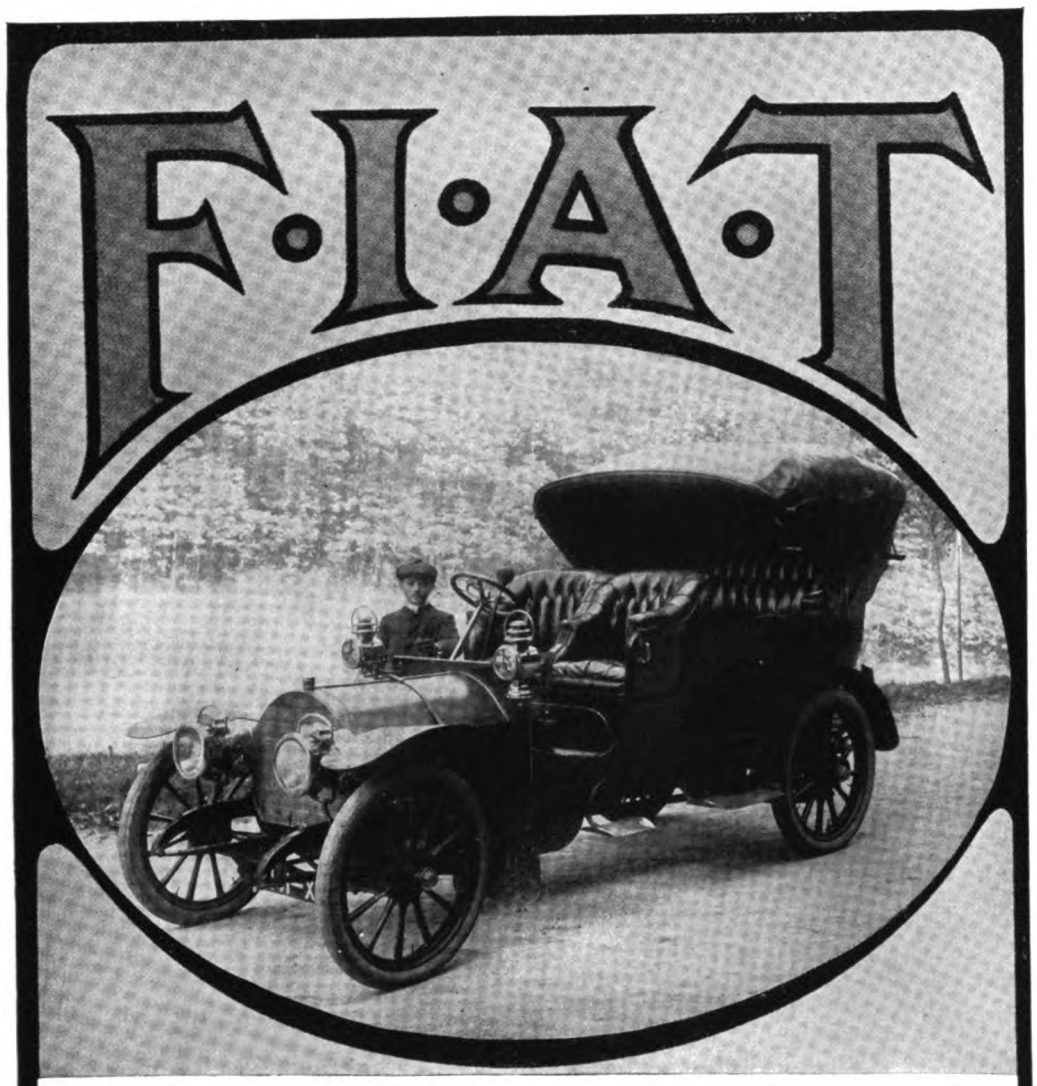
2 CYLINDERS **$900.00** **15 HORSE POWER**

WATCH FOR NEW 1905 TOURING MODELS
IT WILL PAY YOU

BLACK DIAMOND AUTO. CO. **UTICA, N. Y.**

Eastern Pennsylvania Agency
660 NO. BROAD ST., PHILADELPHIA, PA.

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"THE ARISTOCRAT OF AUTO CARS"

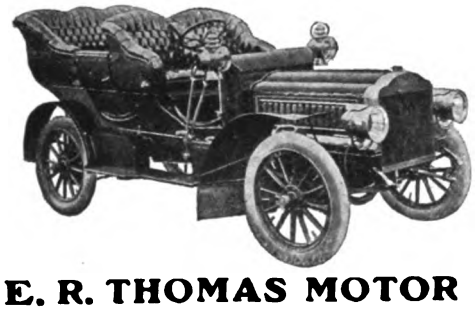
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HOLLANDER & TANGEMAN

Sole American Agents. 5 WEST 45TH STREET, N. Y.

Licensed Importers under Selden Patent.

THE 40 H. P. THOMAS "FLYER"



4 CYLINDERS—$3.000.00

Speed 4 miles to 60 miles

Dustless Tonneau Side Entrance Beauty

Reliability Value

The Best Car Built for American Roads

SEE THEM AT

New York—48th and Broadway—H. S. Houpt
Boston—288 Columbus Ave.—C. S. Henshaw
Chicago—5311 Cottage Grove Ave.—C. A. Coey & Co.

MANUFACTURED BY

E. R. THOMAS MOTOR CO., BUFFALO, N. Y. 1236 Niagara St.

MOTOR *For the Reader—Interesting* *For the Advertiser—Profitable*

TENNANT

The Tire Par Excellence

Illustrated Booklet Free

Tennant Auto Tire Co.

134 W. Main Street SPRINGFIELD OHIO

RICHARD-BRASIER

Gordon Bennett Cup Winner

National Richard Agency

New Address: 141 WEST 55th STREET, NEW YORK

One Season of Motoring Afloat

(*Continued from page* 38.)

rate of 17.8 knots per hour. A few days later on June 11, the Riotte *Standard*, a boat of 51 feet on the water line, fitted with a 125-horsepower motor, covered 32 miles on the Hudson River in 1 h. 41 min. 27 sec., or just a fraction under a 19-knot gait.

Two weeks later the *Standard* won the first race for the American Power Boat Association's $1,000 gold cup, on June 2, 3, 4, and 5, covering the 32-knot course on the Hudson at an average rate of over 20 miles per hour.

About a month later they got the *Vingt-et-Un II* going properly, and Nat Herreshoff's *Swift-Sure*, a steam-driven craft, got into the game at the Atlantic Yacht Club on July 30, when the pair made a great race of it with the *Standard*. This was in rather rough water, and to many people's surprise the honors were all with the perfume launches which beat the *Swift-Sure*, boat for boat, although the steam-driven craft was of far greater horsepower. In the race the *Standard* averaged 24.29 miles, the *Vingt-et-Un II* 23.83, and the *Swift-Sure* 23.16 miles over a 20-knot course.

Their speed was on the increase as at Newport, August 18, the *Vingt-et-Un II* made a new record by covering a 16-knot course in 42:58, or at the rate of 25.67 miles per hour; while the *Swift-Sure* time was almost as good, as the Herreshoff boat was only beaten 3 seconds on actual time. The *Standard* did not take part in this race as she had been sold and taken up to the St. Lawrence River. The *Vingt-et-Un II* was also sold to a St. Lawrence yachtsman, but neither the *Standard* nor *Vingt-et-Un II* was able to take part in the free-for-all race at Frontenac, August 27, which gave the *Standard's* old rival, the Leighton boat *Adios*, a practical walkover and she covered the 19⅞-knot course in 57:05.

The season's racing wound up with the second race for the American Power Boat Association's gold challenge cup over the Columbia Yacht Club's 32-knot course on the Hudson River, September 22, 23, and 24, which brought out of a fleet of ten starters.

The starters with their owners, rating, horsepower, and allowance follow:

Boat.	Allow.	Rat'g.	H.P.	Lgth.
Challenger ..... Owned by Smith & Mabley.	Scratch	88.35	119.44	39.07
Vingt-et-Un II ..... Owned by W. S. Kilmer.	10:17	79.35	59.72	38.10
Speedway ..... Owned by C. L. Seabury.	19:20	72.84	64.45	39.03
Mercedes U. S. A.. Owned by H. L. Bowden.	20:05	72.30	42.20	31.11
Macaroni ..... Owned by C. H. Tangeman.	26:56	68.10	40.38	31.11
Mercedes VI. ..... Owned by W. K. Vanderbilt, Jr.	31:12	65.70	39.52	39.90
Shooting Star ..... Owned by H. A. Lozier, Jr.	31:29	65.55	24.07	37.80
Flip ..... Owned by C .D. Holmes.	32:17	65.01	38.09	34.20
Marcirene II ..... Owned by J. W. Allison.	56.55	54.25	34.40	34.50
Josephine ..... Owned by A. J. Buschmann.	59:17	53.40	19.08	29.11

On the first day in smooth water the *Vingt-et-Un II*, now owned by Willis Sharpe Kilmer, made the best time over the course, which was a trifle under 30 knots, covering it in 1 h. 15 min. 54 sec., but only finished in fifth place on account of her handicap, while W. K. Vanderbilt, Jr.'s *Mercedes VI*, which covered the course in 1 h. 21 min. 30 sec., won the race easily on corrected time, with the Fiat boat, *Macaroni*, second; *Speedway*, third; *Mercedes U. S. A.*, fourth. The wind and sea practically put most of the other boats with the exception of the *Speedway* and cabin launches out of business on the last two days, and as a result the *Vingt-et-Un II* won easily, covering the 32 knots on the second day in 1 h. 27 min. 3 sec or 6 min. 27 sec. faster than the *Standard's* record for the course. Summary follows:

Name.	1st day.	2d day.	3d day.	Ttl.
Vingt-et-Un II	6	8	10	24
Speedway	8	4	9	21
Mercedes U. S. A.	7	5	8	20
Flip	4	7	7	18
Macirene II	2	6	6	14
Mercedes VI	10	0	0	10
Macaroni	9	0	0	5
Shooting Star	5	0	0	5
Josephine	3	0	0	3
Challenger	0	0	0	0

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Established 1818

BROOKS BROTHERS

Broadway, Cor. 22d St., New York



Fur-Lined Overcoats

in

Rainproofed Lovat Tweeds

These coats are in fancy patterns, checks, plaids, etc., which blend harmoniously with the rich though not expensive furs.

Adapted for either general or motor wear, they are stylish in appearance and represent a new departure in fur-lined overgarments.

Directions for ordering by mail sent upon request.

Highest Grade of

Fur and Leather Garments

for Automobilists



We carry the largest stock of everything you may desire in Fur and Leather Apparel

Garments Made to Order

SPECIALTIES:
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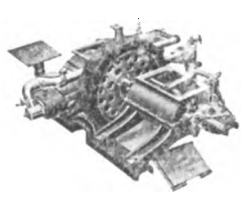
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Canada's Growing Interest in Motoring

(*Continued from page 26.*)

of the capital city was slow and steady, but since that time it has been proportionately more rapid. Ottawa now has a population of over 60,000, and has nearly one hundred miles of streets within its limits. The half-dozen wideawake American mill men who located here during the forties and fifties were attracted by the magnificent force of the Chaudier Falls, estimated at about a quarter of a million horsepower, and by the vast Canadian forests, drained by the Ottawa and its tributaries. As a result, during the last half century, not only have many individual fortunes been made by the "lumber princes," but the city itself has attained to a size and importance that would never have been possible to a mere political capital.

With recollections of disastrous fire news from this quarter in 1900, and again in 1903, the visitor is very likely prepared to look from the railway station, when he alights from his train, upon a scene of desolation only in part made good. But he is pleasantly disappointed in being obliged to look diligently about for traces of fire. As a matter of fact the conflagration of 1900 started at Hull, leaped the Ottawa River and laid waste the adjacent portions of the greater city. After devouring many of the industries on both sides of the river, the flames made inroads upon the outlying residential districts, but the substantial business section remained practically untouched. To-day Ottawa is undoubtedly better off in many ways for this visitation. The wooden shacks that formerly covered whole squares have been replaced by tasteful homes of brick and stone, with an undisputed improvement in appearance, health, and comfort.

The representative of MOTOR, during a recent visit to Ottawa, found there two well-equipped garages, well filled with motor cars—mostly of United States manufacture—belonging to residents of the capital city and vicinity. Through the courtesy of one of them, Mr. Warren Y. Soper, a ride was taken in his autocar to the Vice Regal residence—Rideau Hall—and beyond to Rockliffe Park, whose fine river view, and well-kept grounds and drives long will be remembered by the visitor. The accompanying views were taken at that time, with the exception of the one showing the gathering of motorists in front of the Ottawa City Hall, the occasion being the celebration of Dominion Day, July 1st, the anniversary of the confederation of Canada's provinces.

One of the most beautiful driveways in all America is that extending from the government property on the northeastern city limits, southerly and in part along the Rideau Canal banks, and then westerly to the Experimental Farm. This is one of the projects of the Ottawa Government Commission, a body of five men clothed with unique powers. Since the government pays no taxes of any kind to the city where its vast properties are located, an appropriation of $75,000 per year is contributed toward the beautifying of Ottawa. This Commission has very sweeping powers, among which is the power to take over any property needed for its purposes, to close up any existing road or build any new thoroughfare it sees fit. The money donated by the government is spent to good advantage, and still better results are expected from future appropriations.

Though the motor car is comparatively a new thing in Canada, it has become a familiar sight on the streets of the city. The visiting motorist sees no scared horses and attracts no sensational attention from the people. There seem to be no unreasonable restrictions, and there is no stubborn resistance to the progress of the sport by the authorities either of the government or of the city, as there is in some places in the United States. Undoubtedly the care which the pioneer motorists of Canada have taken to avoid conflict with the authorities, as well as to meet the well-known conservatism of the people, has had a great deal to do with shaping this good result.

Ottawa is in reality the center of a superb,

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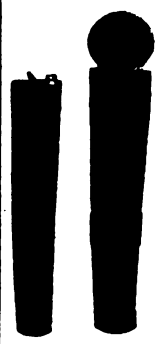
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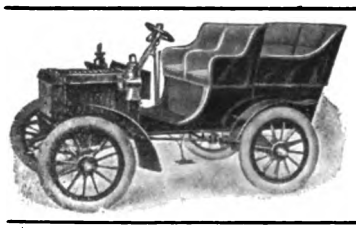
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but as yet largely unexplored motoring district, with fair roads leading to many interesting places. It is possible to tour all the way to Montreal, some 130 miles distant beyond, or to reach the St. Lawrence River either at Prescott (opposite Ogdensburg, N. Y.), Brockville, or Kingston, the last-named route being for part of the way along the famous Rideau chain of lakes. Then there are a number of splendid short rides to nearby places of interest on both sides of the interprovincial line. Within the next few years, some of these routes ought to be about as well-known as corresponding routes on the American side.

Hull, opposite Ottawa, and the third city in the Province of Quebec, is widely known as the headquarters of the greatest lumber industries in the world. Here the enormous water power of the Ottawa River is at its best. One may motor from Ottawa to Hull through the lower part of the town, and back on the opposite side of the river easily in a half hour, part of the journey being in Ontario, part in Quebec.

Situated in the midst of a splendid recreation country, a number of Ottawa motorists, nearly all of them sportsmen and nature lovers, have built summer homes and camps in the forests and on the waterways within a radius of a hundred miles from the Parliament Buildings. The visitor is sure to receive invitations to different outings, which it is a pleasure to accept if time permits. Were the writer to acknowledge at this time all the courtesies extended and favors received from Canadian friends of the new conveyance, it would be necessary to name practically every one met in the course of an extended inquiry.

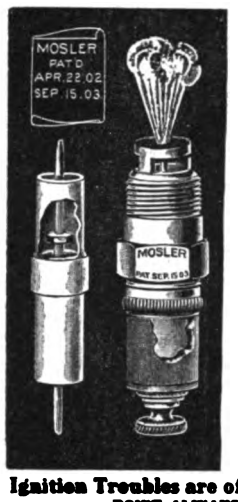
The motoring season in Canada is naturally somewhat shorter than in the United States, the usual limits being about the beginning of May and the end of October. June—the first fullness of summer—and September—with forerunning signs of autumn—are best of all. There is something about the stillness of the Canadian woods and roads that is at all times enchanting to one accustomed to the livelier scenes on this side of the international boundary. There is a sense of freedom and of space, a closer, easier kinship with Nature. Journeying about where roads are good and everything well kept, and where a broad, generous hospitality extends over all, it is a vacation that charms and invigorates. Perhaps an impression of the beautiful surroundings of some of the drives can be caught from the accompanying picture of a motor-car party stopped on the other side of the long stretch of the greensward in Rockliffe Park.

One may spend days or weeks exploring the sections of older Canada that are easily accessible from New York State and New England points alone; variety is sure to outlast time and inclination. In his adventures, the tourist doubtless will be early astir more than once, wondering whether or not the uncertain light of a dull sunrise will turn into a favorable day for travel over the roads. Nothing daunting, he will persevere, and in most cases find his fears dissipated and his best anticipations fulfilled. And at the end of his stay he may be sure that he has come to know one of the most interesting and delightful portions of the continent as he could in no other way.



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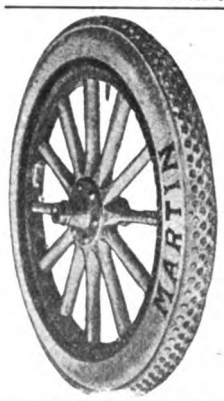
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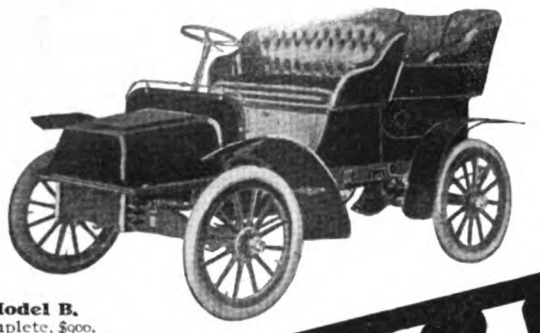
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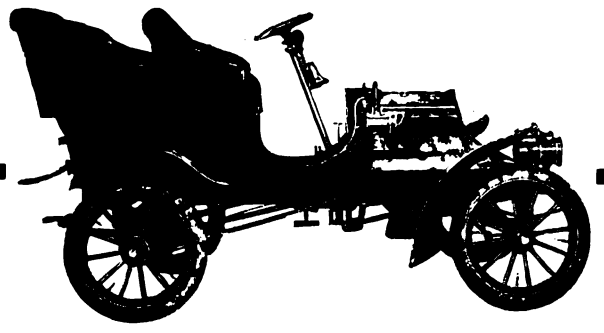
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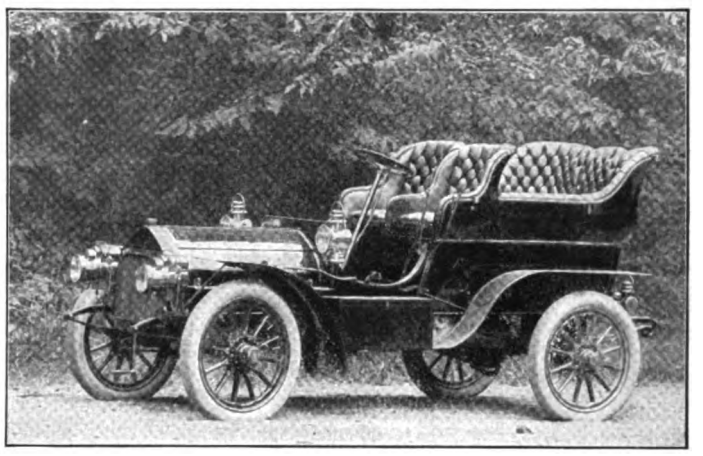
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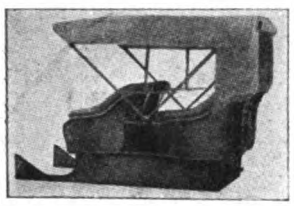
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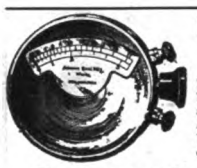
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In the Yosemite Valley

(Continued from page 33.)

fect. Another exploit which helped make Glacier Point famous, was that of the Stanford University student, who proved himself devoid of the sensation of dizziness by standing on his head on the outermost point of the rock. The high grade of foolhardiness that withstood this test can, perhaps, be better appreciated by the fact that ordinary mortals, when gazing from this height, not infrequently experience a desire to be firmly tied to any convenient but exceedingly stable mountain sufficiently to the rear to itself be in no danger of being pulled over.

Mirror Lake is reached just before the turn in the valley, and the inverted reproduction of the surrounding pinnacles that its placid surface reveals is all that the name of the lake leads one to expect.

Illilouette Falls are next after Glacier Point Here the Illilouette Creek drops over a 500-foot cliff. Across the way are Vernal Falls, where the main Merced River—80 feet wide—drops a curtsey of 350 feet upon its entry into the valley. Farther up the river are Nevada Falls, and here the cataract—still 80 feet wide—comes down 800 feet without a break. Nevada Falls are estimated to carry as much water as all the others in the valley combined.

South of the valley, a few miles, is the Mariposa Grove of big trees—450 in number and averaging 25 and 30 feet in diameter and 300 to 400 feet high. One of the trees, the famous "Wawona," which is 27 feet in diameter, is the one through which the stage road passes, the height and width of the laboriously chopped out wooden archway being ten feet. Nevertheless, the tree flourishes as luxuriously as it has for the last three thousand years—its age being estimated by the rings of growth that appear upon cross-sectioning.

The roads that enter the valley from the south are said to be very fair, and at least one motorist has made the trip by way of them, but that, of course, is another story.

Hartford's Motor-Driven Fire Engines

(*Continued from page* 41.)

ance-wheels and is capable of twenty miles an hour.

The smokestack, into which the engines exhaust direct, is 16 inches in diameter, and is provided with an extension to afford a better draught when necessary. There is no fire under the boiler when the engine is in the house, but as soon as it leaves for a fire, the fire is automatically lighted. In this engine, as in "Jumbo," the engines are geared direct to the intermediate shaft upon which the differential is located, and two endless steel chains are employed as drivers and engine sprockets on the two rear wheels. The wheel base is 10 feet 6 inches and the tread is 6 feet 2 inches.

Iron spikes or buttons set in the tire serve to give the driving wheels a hold upon the pavement. Two compensating rods serve as chain sets, to allow for a slack, much the same as in a bicycle. The wheel-steering system is employed, the steering-post working a series of worm and bevel gearing, the wheel being 36 inches in diameter. In heavy winter weather, horses are employed for the same purpose, in which case the steering-post is simply taken out.

These two engines being extra sized are practically equivalent to four smaller ones. They are indispensible when it is considered that the city has only nine engines in the service, and these two extras are located so as to cover the more densely populated districts of the East Side and the business portion, which fact does not imply, however, that they cover only the center sections of the city, for it very often happens that they are called on a two or three mile run, being able to leave the house six seconds after receiving the alarm. Despite their great size they are much cheaper to maintain than a horse-drawn engine. It costs the department about $28 per month to maintain one of these engines, against $62 for a smaller sized horse-drawn engine.

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Order your Body Work of
LAMPLUGH
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N. B.—Your order will be turned out at the time agreed upon.
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BEAR THIS IN MIND WHEN YOU ARE LOOKING FOR SUCH.
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"IT'S NICE TO KNOW HOW FAR YOU GO."
VEEDER ODOMETERS
VEEDER MFG. CO., Hartford, Conn.
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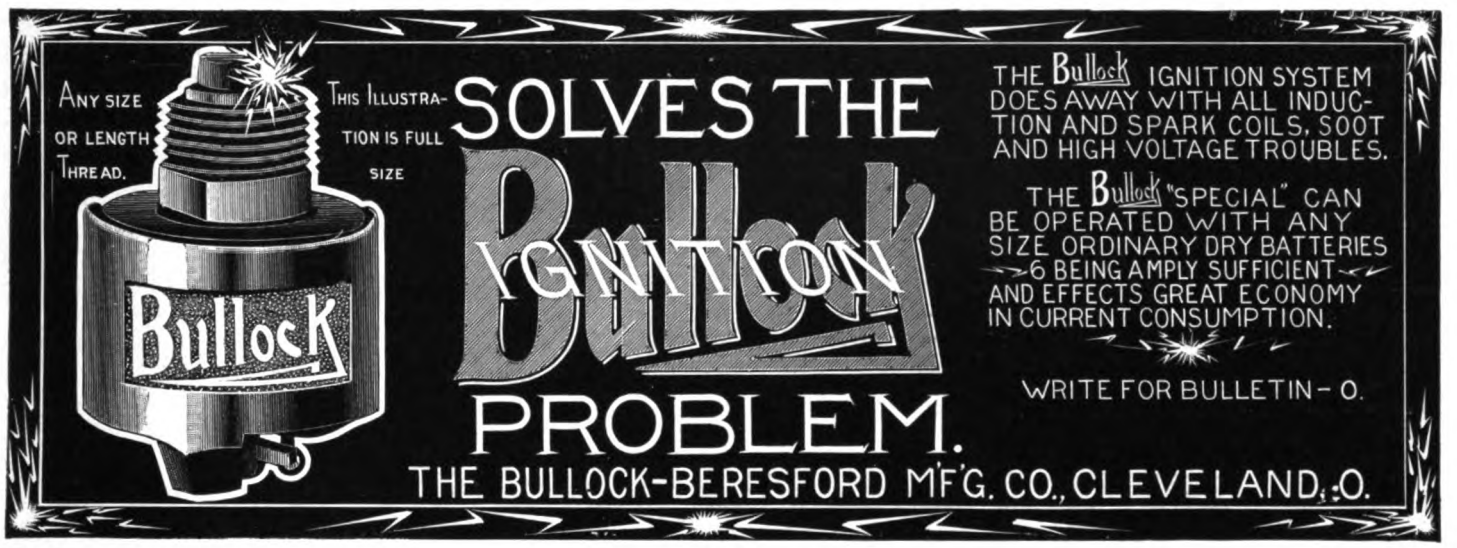
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and desire lamps that will give a full light and stay lit through all weather and going get

SOLAR
AUTOMOBILE LAMPS

Made in gas head and search light, and oil side and tail lamps. Also complete line of gas boat lamps and search-lights.

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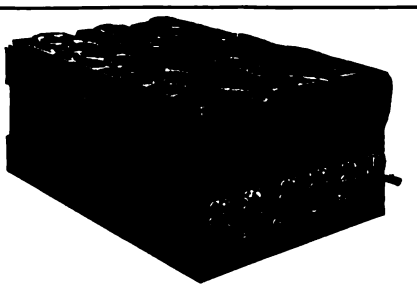
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Four of these Sta-Rite Plugs fired every charge in the 45 H.P. Apperson car for 1800 miles and which incidentally established a new Chicago-New York record

The Ford racer uses them because they stay right longer than any other. They wouldn't use them if they were not dependable.

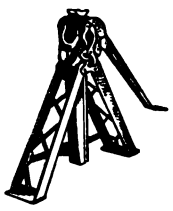
21 SIZES. $1.50 TO $5 00

See that "Sta-Rite" is on the shell.

The R. E. HARDY CO.
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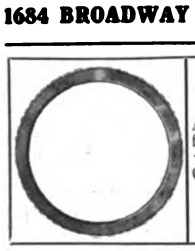
One user said: "Never knew I had any spark plugs until I received your circular."

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JEWEL MICA PLUGS
are the limit. None others quite so good.
Used and endorsed by the leading manufacturers.
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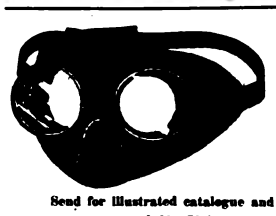


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New features
Single or folding legs.
FOOT OR HAND POWER
Send for Catalogue.
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Absolutely guaranteed to give satisfaction. Any size or shape to order. Sheet Metal Work, Carbureter Floats Clock, Ammeter and Odometer Cases.
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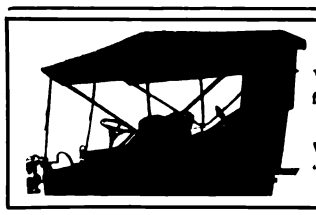


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Will save you gasoline, time, labor and money. They are safe, convenient, satisfactory. Fifteen different styles. Ask for Catalog "IX."
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THE WORCESTER TOP
With robe-rail and storm front. Patents pending.
H. J. RUSSELL
Worcester, Mass.
"The Top with the Telescope Bow."

When the Ignition Fails

(*Continued from page 35.*)

essential that they be not discharged below the point advised by the makers, and from time to time they should be placed in the hands of an expert for thorough overhauling.

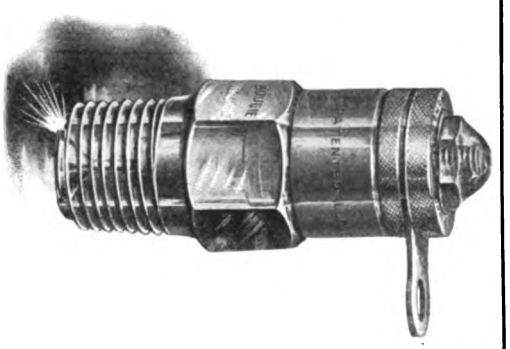
Often, when the current is so weak that ignition is uncertain, it may be improved temporarily by setting the sparking points in the cylinder closer together, thus reducing the resistance of the gap across which the current must jump. The proper distance apart for the points is from 1-16 to 1-32 of an inch, varying with different makes of apparatus.

In all up-to-date cars, the ignition is timed —that is to say, there is provision for causing it to occur at an earlier or later point in each power stroke—in accordance with the speed of the engine and the period the mixture is known to require for reaching complete combustion. Very commonly the timing is controlled by a hand lever, in which case careful and frequent manipulation secures the best results in operation. In other cases, the timing is controlled automatically by a centrifugal governor, which requires to be kept in good operative condition. If a motor refuse to give its full power, and both the carburetion and ignition are ascertained to be all right, it always is possible that the ignition governor is in some manner so out of adjustment that it unduly advances or retards the spark.

Make-and-break and magnetic-plug-ignition systems are less subject to short-circuiting than jump-spark systems, because of the lower voltages employed; nevertheless, they have their ailments. A trouble with these devices, more common in the past than now, is leakage of gas from the cylinder through the bearing in which the moving member of the make-and-break operates. Otherwise, the troubles that arise in make-and-break and magnetic-plug ignition systems are practically of the same general description as those of jump-spark systems.

A New Spark Plug

The greater care that now is expended by makers of ignition apparatus, in the effort to provide a reliable product, little subject to derangement, is well instanced in the new spark plug illustrated herewith, the product of a New York manufacturer. The insulation of this plug is highly-compressed and well-baked talc, which will stand a temperature of 2,000° F., without cracking, and is ground so perfectly into shape by emery wheels that no packing whatever is necessary to make tight joints. It is in two pieces, one of which fits within the other, and both of which are tapered to insure the utmost accuracy of fitting. The sparking occurs between the inner edges of the plug shell and a cup-shaped, annular disk of platinum alloy, which projects from the center of the insulation, and by its peculiar form and



situation insures self-cleaning. Gas accumulates inside of the plug during each compression stroke, thus scouring the electrodes perfectly. The conducting cable is attached to the top of the plug in such a manner that no stresses can come upon the insulating material, there being a sort of swivel ring that slides freely upon the two nuts that serve also to hold the different portions of the plug together. In point of neatness, this plug projects but little from the cylinder, and presents no sharp corners or angles.

A New Booklet
on
Automobile Lubrication
"Graphite for the Motor."
Copies free upon request
Please mention this paper
JOSEPH DIXON CRUCIBLE CO.,
JERSEY CITY, N. J.



Do You Slip or Skid?
THE WEED CHAIN TIRE GRIP
will positively prevent above troubles and will not injure the tire.
Easily and quickly adjusted. *Send for booklet.*
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Crescent Dry Batteries
are the only insurance for Perfect Ignition. Try them and you will adopt them. Type 4-B Special Motor Ignition Battery—in bass-wood case. All sizes; all types; all shapes, and all satisfactory. Long life, high initial amperage, and remarkable recuperative powers.
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IN the names of ***Automobile Lamps*** there's a great deal. There's all that the manufacturer has put into them.

Some names imply ***durability,*** some imply ***quality,*** some imply ***finish,*** some imply ***style.*** Each of such names carries with it the assurance of some ***one*** good characteristic—***but no more.*** But the name

DIETZ

assures every automobile owner, when buying a ***DIETZ OIL LAMP,*** that he is securing a lamp which is guaranteed to have had that mechanical skill employed upon it in its manufacturer which insures ***durability, quality, finish*** and ***style.***

WRITE FOR BOOKLET

The new 1905 Automobile Lamps—both oil and gas—will soon be ready. They, too, will bear the name DIETZ and all that the name inplies and guarantees.

R. E. Dietz Company

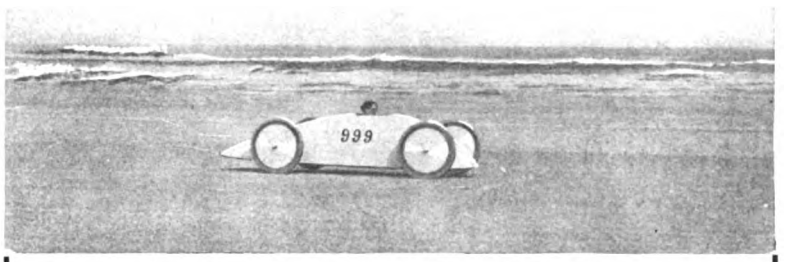
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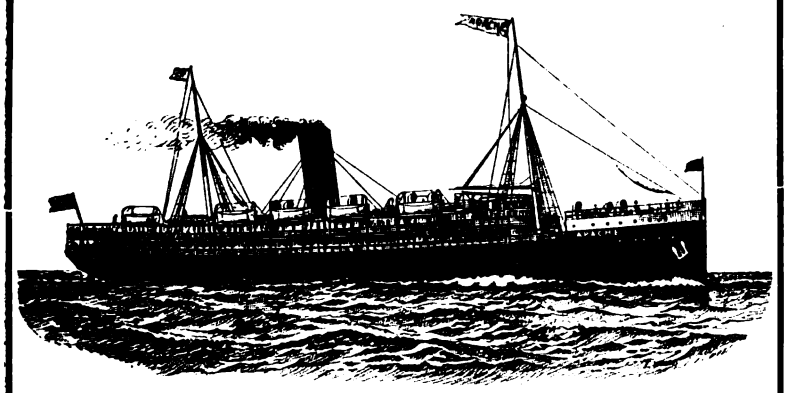
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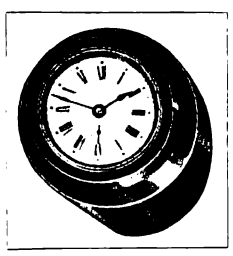
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Agents for CONTINENTAL TIRES
MOTOR CAR EQUIPMENT CO.
1645 Broadway, New York City

The Choice of a Motor-Car

(*Continued from page 34.*)

very sluggish when laden with passengers. A light car is likely to be better for traveling over soft ground, even should its horsepower be below the figures stated. When sunk four inches into the surface, tires will not encounter twice, but nearly three times the friction they meet at a depth of two inches. Consequently, a light car with moderate power may travel over roads that prove impassable for heavier cars, even those having proportionately more horsepower. Moreover, mud is frequently in such a condition that it will "carry" a light car, but "give" to the wheels of a heavier one.

Of all the means of determining the relation of price to value a fair and systematically conducted test is the best. An ideal series of trials might be about as follows:

1.—A mile start from a standing start, made under favorable conditions, but not on a down grade.

2.—The same test, but with a flying start.

3.—A 25-mile run over good roads.

4.—A run of at least a mile over a hill of known gradient, preferably well up to the maximum that the car is claimed to climb.

5.—Exhaustive tests of the brakes, at various speeds, and both on the level and on down grades.

6.—A cross-country run of at least 25 miles, made under unfavorable road conditions.

7.—A trial to determine the smallest circle within which the car may be turned conveniently.

8.—Careful gauging of the fuel, lubricating oil, and water consumed during the tests.

During the foregoing tests, it will pay to make an actual record of good and bad features as they crop up, using, as much as practicable, instruments of precision, such as stop watch, speed indicator, cyclometer, and so forth. Moreover, the car should be tested with a full load.

While under ordinary circumstances many dealers will refuse to permit such exhaustive tests on the mere prospect of a sale, there are few of them who will demur if a reasonable fee is proffered, covering the time of the driver, the fuel consumed, the slight wear and tear on the car, etc.

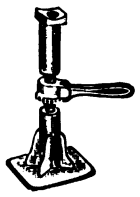
In conclusion, it is a duty emphatically to acknowledge the rapid strides that the American industry has made in the direction of reliability. Competition and the inspiring example of many leading manufacturers have had their effect, and soon will succeed in completely stamping out the evil of misrepresentation from an industry, which, in the span of a few years, has become one of the most important in the whole field of manufacturing, and whose products are destined to carry the fame of American skill, ingenuity, and enterprise into the remotest corners of the earth.



"What's the matter, Kid?"

"Boo hoo! Willie here wants ter be de shuffer all de time 'cause he's near-sighted, 'n kin run over more people."

WHITNEY CHAINS
THE WHITNEY MFG CO., HARTFORD CONN.


AUTO SCREW JACK
Powerful Ratchet Double-Acting Screw Jack
Easy to Operate Quickly Adjusted
No. 501 weighs 7 lbs., will lift 3000 lbs, and adjusts in height from 11 to 17 inches.
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MICA SPARK PLUG

Our new 1905 Model is nearest to Sootproof of any plug made. Price, $1.50 each. Manufactured by
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AUTOMOBILE EQUIPMENT CO.
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Skidding or slipping impossible. Prolongs life of tires. Puncture-proof Retreading and Repairing of all kinds.
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And cheap tires are a
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(Winner of the Grand Prize at St. Louis Exposition)
The most popular tire on the American Continent today.
Send for Price List
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Made by

Richmond, Indiana, Mfg. Co.

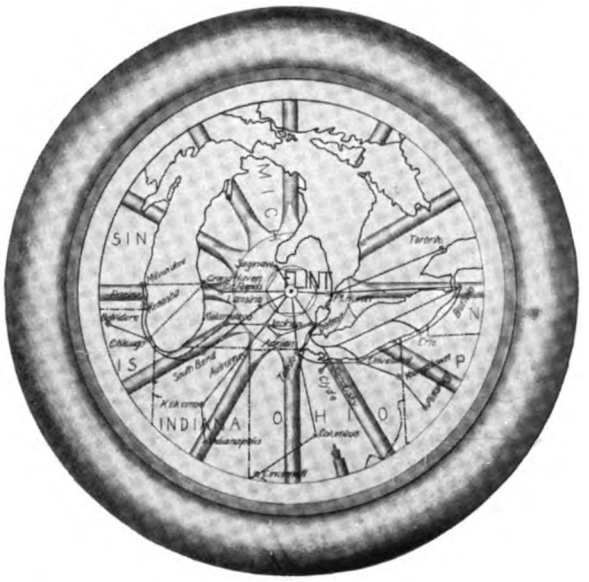
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We make all kinds of Automobile Wheels.
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Write for prices.
Try us.
"Have you seen the 'IMPERIAL' the strongest and neatest wheel made?"

We have demonstrated our ability to "DELIVER THE GOODS."
"No holding of orders. We guarantee prompt shipment and the 'BEST WHEEL ON EARTH.'"
Now is the time to specify for your requirements, so that ample time is given to prepare for your particular style.

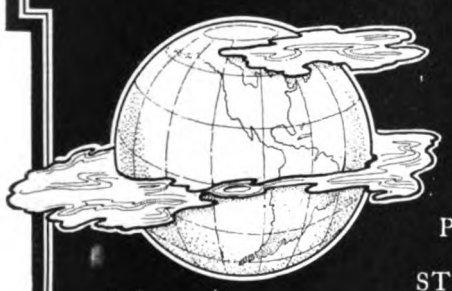


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THE SHREWD, FAR-SEEING BUYER KNOWS THE VALUE OF USING SUCH STAMPINGS AS OURS.

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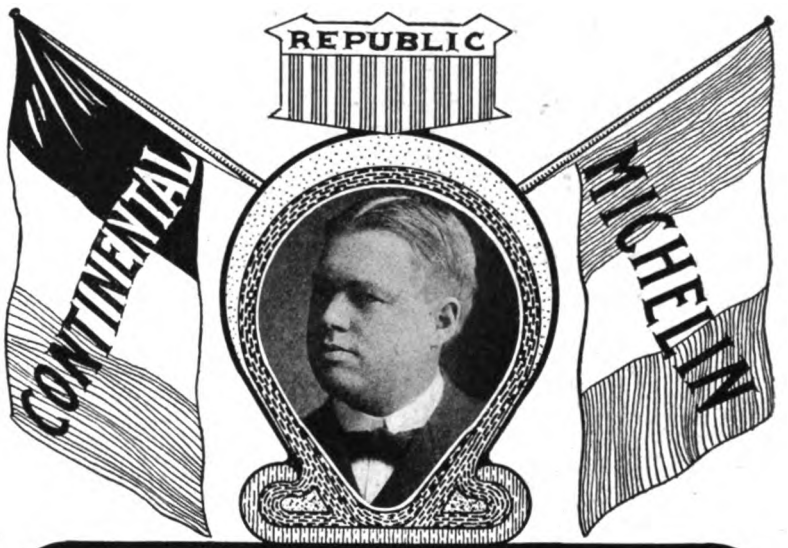
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THE PARISH & BINGHAM CO.
Manufacturers of the P. & B. Indestructible Wheel
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P.



I AM ON THE INSIDE

of the Motor Tire business and can repair and recover your Michelin and Continental or American tires and make them as good as new. If you would *save money* and desire *good work* send your tires to *me at once.* I will fit your tires with extra heavy rubber vulcanized treads or supply non-slip leather covers for winter use. Inner tubes vulcanized. Single tube motor tires repaired. Solid and Cushion Tires applied. Prompt service and satisfaction guaranteed. Prices on all work by return mail. Frederick E. McEwen, Manager.

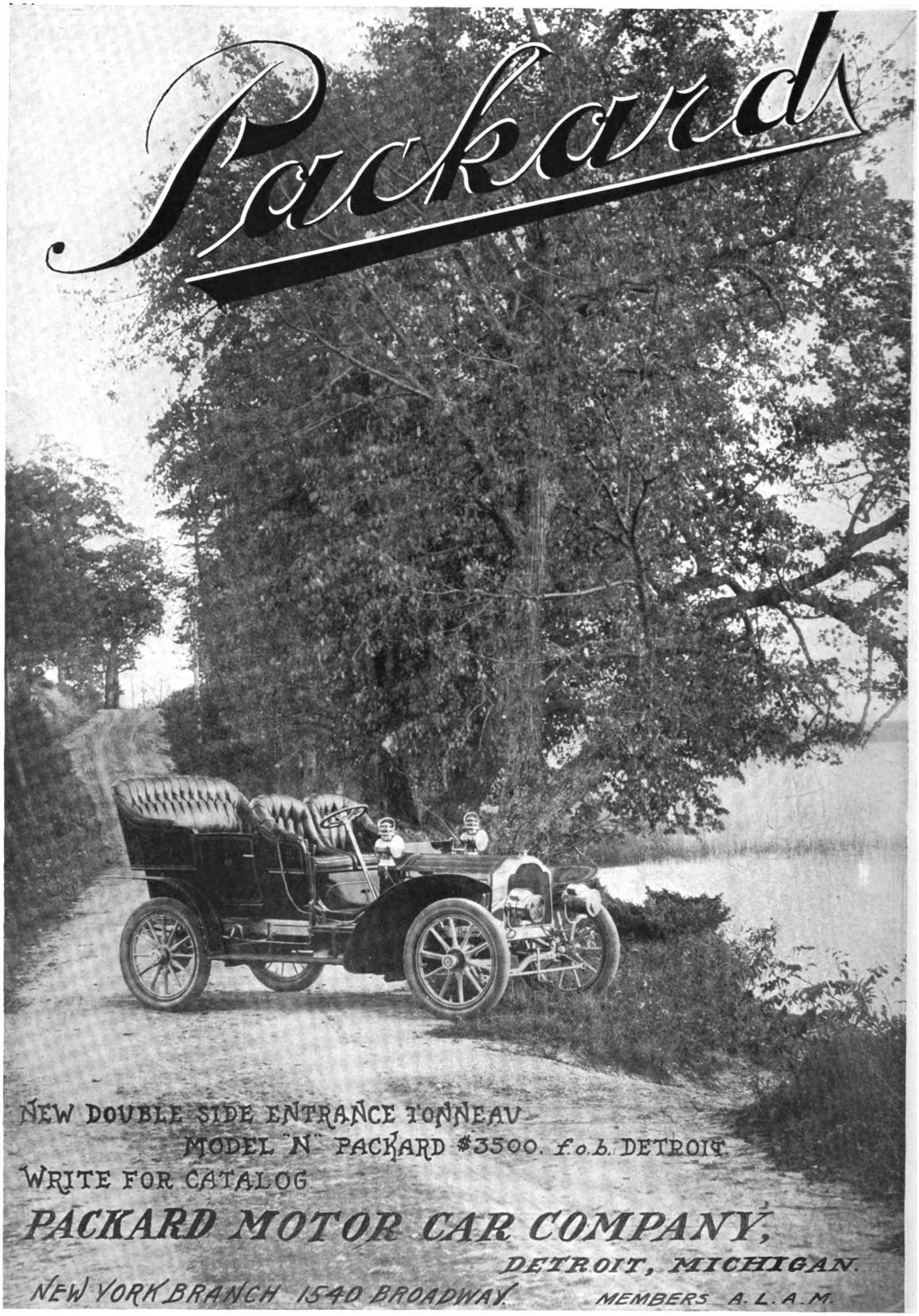
THE REPUBLIC RUBBER TIRE & SHOE CO.

138 West 52d Street, New York City

Telephone, 2795 Columbus

P MOTOR.

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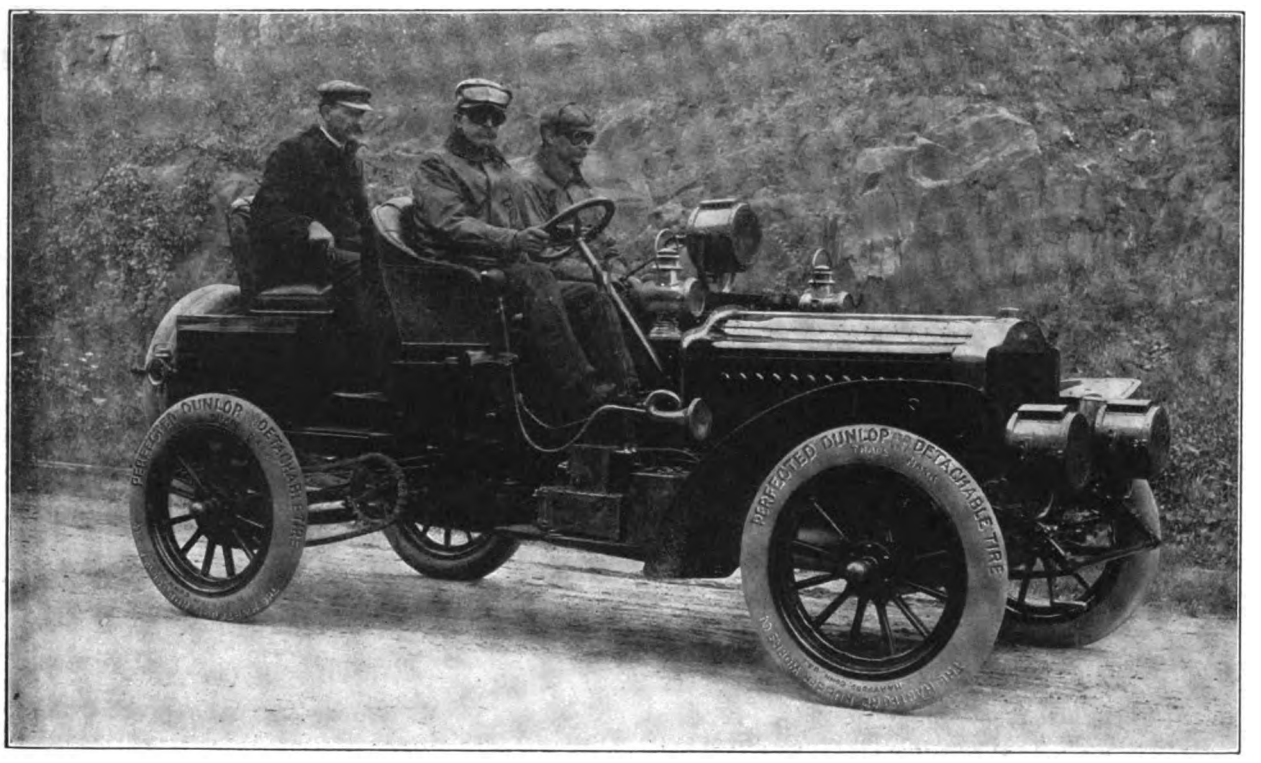
THE

PERFECTED DUNLOP

DETACHABLE TIRES

RECORD BREAKERS

Chicago to New York in 58 hours 45 minutes. Net running time 51 hours 5 minutes. A Columbia 30-35 Horsepower Stock Car, equipped with Perfected Dunlop Detachable Tires, in the run from Chicago to New York, October 4-6, broke the record by 13 hours 58 minutes.



MAXIMUM FOR

SPEED, COMFORT

AND

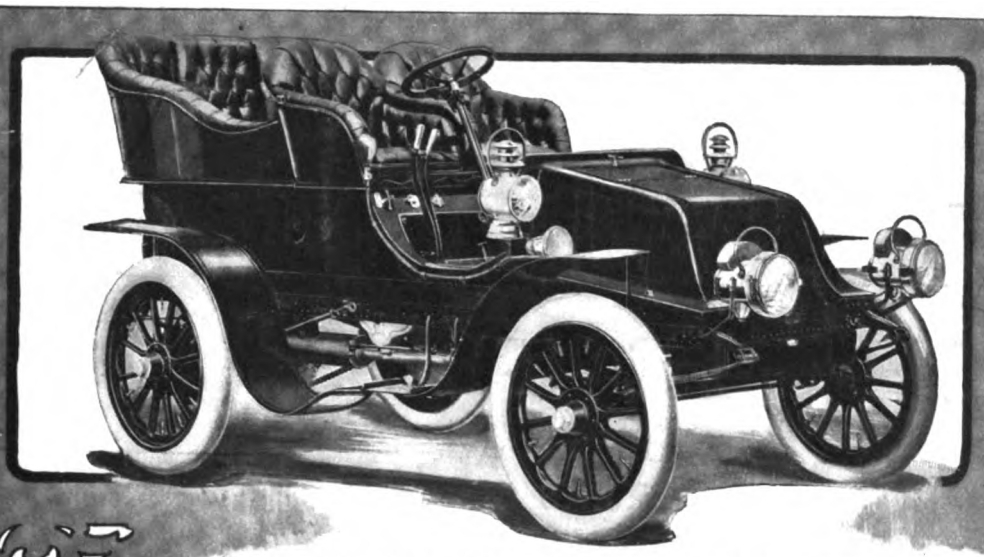
EASE OF REPAIRS

THE HARTFORD RUBBER WORKS CO.

HARTFORD, CONNECTICUT

BOSTON NEW YORK PHILADELPHIA BUFFALO CLEVELAND DETROIT
CHICAGO MINNEAPOLIS DENVER ST. LOUIS SAN FRANCISCO LOS ANGELES

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WINTON

7,000 MILES IN 70 DAYS

Telegram to The Winton Motor Carriage Co. from Mr. C. E. Wilkins of Omaha: "Safe arrival only too soon. Seventy days' outing. Seven thousand miles. No repairs or replacements to motor. No accidents. Seven hundred pictures. Here's to the WINTON! May her clutches on the hearts of the people never slip."

MR. WILKINS USED A WINTON TOURING CAR

$2,500 completely equipped; $2,300 without top; f. o. b. Cleveland.

THE

WINTON MOTOR CARRIAGE COMPANY

MEMBER A. L. A. M.

CLEVELAND, OHIO, U. S. A.

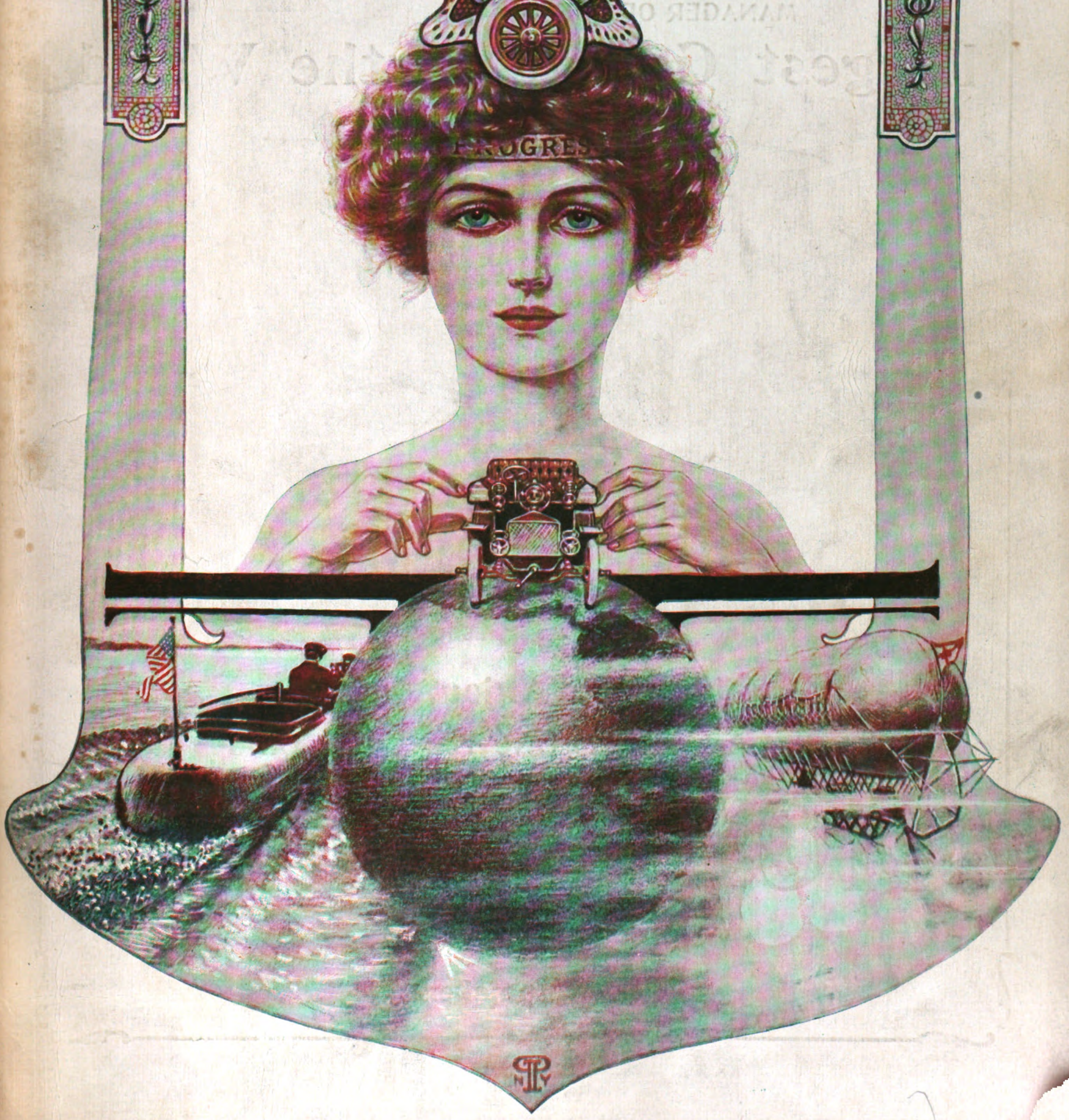
Chicago New York Boston Philadelphia London

THE CAREY PRESS, NEW YORK.

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MOTOR

Transportation
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If You Go

Touring in Europe

Don't Fail to Call On

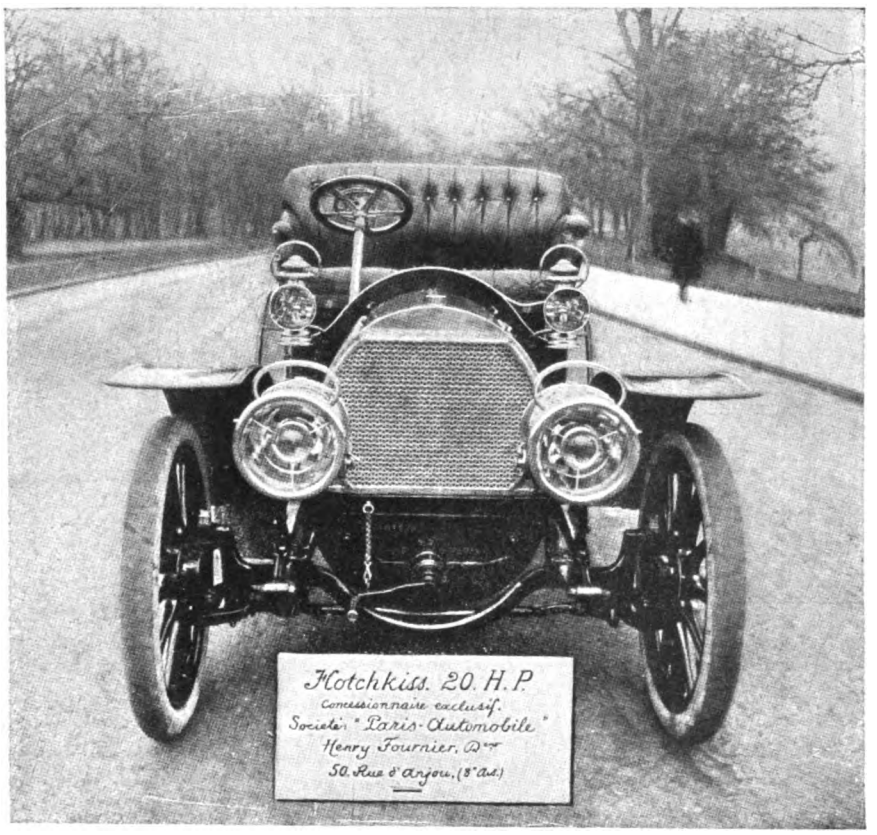
MR. HENRY FOURNIER



Champion of the World

MANAGER OF THE

Largest Garage in the World



50 Rue d'Anjou, Paris

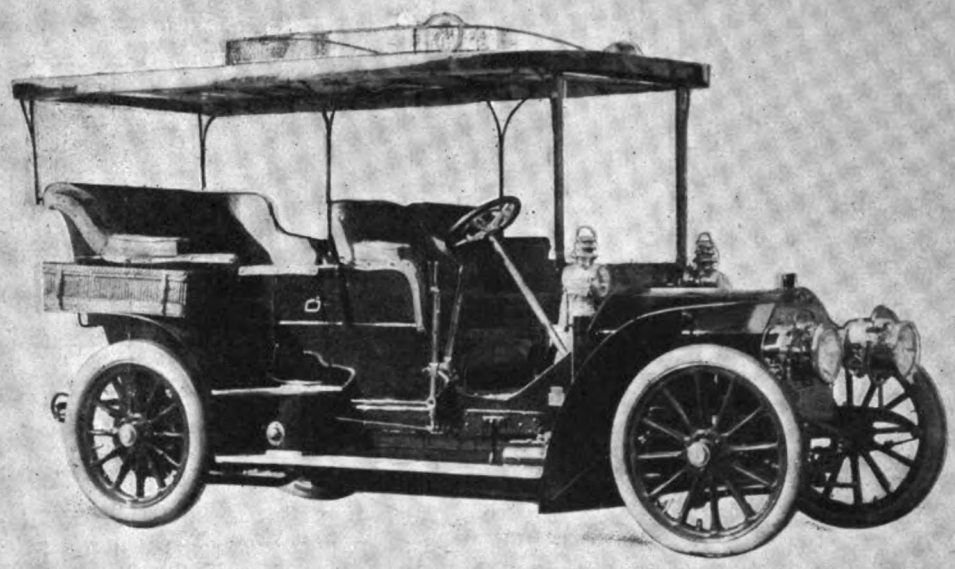
And Ask Him to Give You a Ride On a

HOTCHKISS

Built Like A Gun

By Gunmakers

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1905~Mercedes

We have the honor to announce the taking over of the entire and exclusive business management and distribution of 1905 Mercedes in the United States, by arrangement with

ALLEN HALLE CO. Sole Concessioners Under License From C. L. Charley

LONDON PARIS STUTGART

Full prices, particulars and information on request.
All parts and accessories will be kept in stock.

Smith & Mabley

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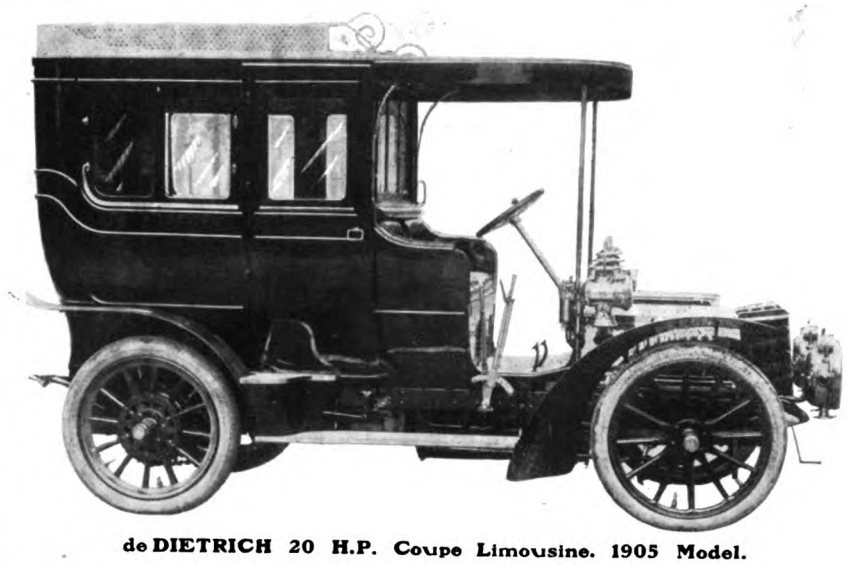
513~519 SEVENTH AVE.

NEW YORK, N. Y.

MEMBERS **A. L. A. M.**

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DE DIETRICH
(LICENSE TURCAT-MERY)



de DIETRICH 20 H.P. Coupe Limousine. 1905 Model.

The Four Models
for 1905 of the

DE DIETRICH

Especially built in France for American Roads:

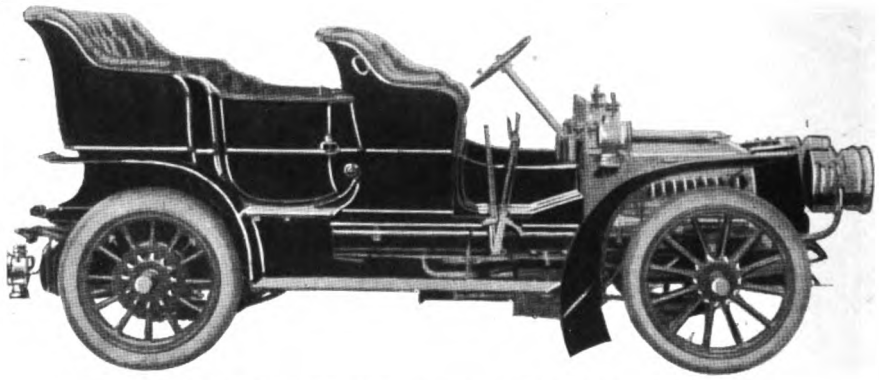
20 H.P.
30 H.P.
40 H.P.
60 H.P.

THE 1904 RECORD
of the Renowned

DE DIETRICH

Extracts from users' letters:

"The ideal car for town and country."
"Wonderful hill climber."
"Delightfully even and silent running."
"Easy to drive."
"A splendid piece of engineering work."
"Perfect workmanship."
"De Dietrich bodies are the perfection of graceful outline."
"Splendid material."
"Reliability, strength, extraordinary wearing qualities."



de DIETRICH 30 H.P. Touring Car. 1905 Model.



AMERICAN DE DIETRICH

Sole Agents for U. S.

1 West 34th Street
Opposite Waldorf.
New York City

Telephones: 974 } 38th.
975 }

MOTOR CAR CO.

Canada, Mexico and Cuba

R. E. JARRIGE
Treas. and Gen. Mgr.

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PANHARD & LEVASSOR

19 AVENUE D'IVRY, PARIS,

American Branch 230 West 13th st. New York City.

TELEPHONE 316-317 CHELSEA.



P MOTOR.

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A $3000.00 WINTON 1ST..... PRIZE

Below are reprinted pictures of the first twenty motor cars that were printed in instalments of ten in the last two issues of MOTOR. The last instalment of ten is printed on the opposite page.

The edition of MOTOR for November being exhausted, we are unable to furnish new subscribers wishing to compete in MOTOR'S MOTOR PUZZLE with copies of that issue in which is contained the first instalment of the contest.

We therefore reprint below the same pictures of the cars that appeared in the November issue of MOTOR, together with those printed in the December issue, so that new subscribers may have an opportunity to win the $3,000 Winton motor car or one of the 499 other prizes.

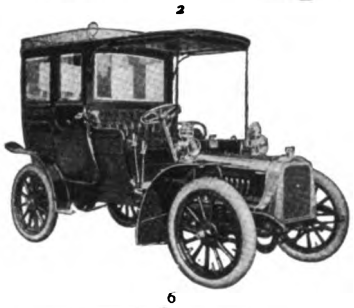

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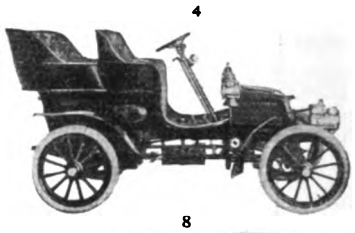

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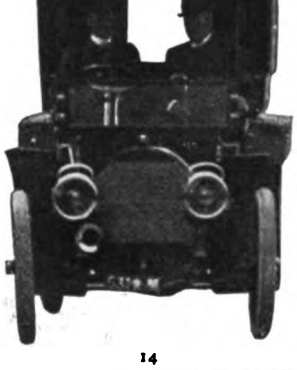

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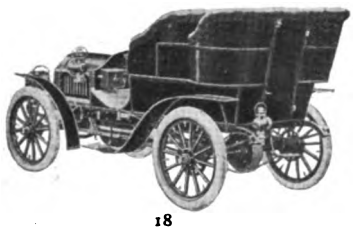

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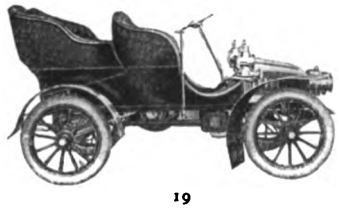

14


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20

FILL OUT — CUT OUT — MAIL TODAY

MOTOR, 1789 Broadway, New York City

Below is my answer to the first and the second instalment of MOTOR'S MOTOR PUZZLE

1.....	6.....	11.....	16.....
2.....	7.....	12.....	17.....
3.....	8.....	13.....	18.....
4.....	9.....	14.....	19.....
5.....	10.....	15.....	20.....

Name..... Address.....

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A $3000.00 WINTON 1ST PRIZE

Below are pictures of 10 standard makes of motor cars. Can you name them? Many persons think that they can recognize the make of any car at sight.

This is an opportunity for you to test your skill and also to win a $3,000 Winton motor car or one of 499 other prizes.

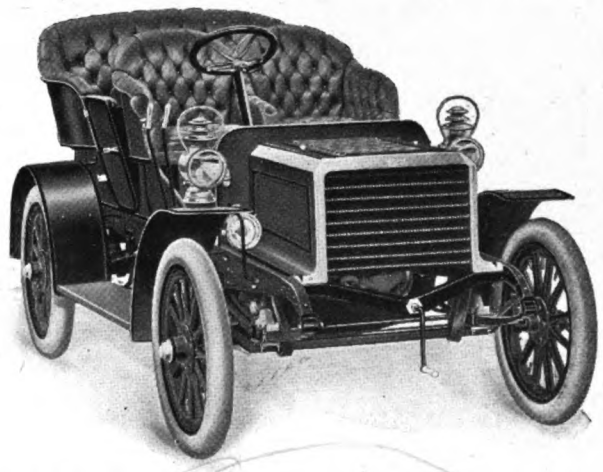
The novice has the same chance as the expert: other views of the cars—with names—will be found in the text or the advertising pages of current issues of MOTOR. A little care in observation and comparison will be of great assistance to the contestant.

The cars shown below comprise the third and last instalment of MOTOR'S MOTOR PUZZLE, which was commenced in the November issue. If possible the February issue will contain the complete list of awards.

On the opposite page are printed the cars which comprise the first and second instalments that appeared in MOTOR for November and December. Having no more copies of November and December MOTOR, we reprint these cars in order that new subscribers may have a chance to enter the contest.

Every subscriber for MOTOR may send as many answers as desired, but each answer must be written upon a slip clipped from MOTOR.

WINTON Cars possess a unique excellence guaranteed by the WINTON Motor Carriage Co.'s long experience and its great productive facilities.



WINTON Cars are built under the personal supervision of Mr. Winton. The 4-cylinder WINTON represents a high standard of automobile value.

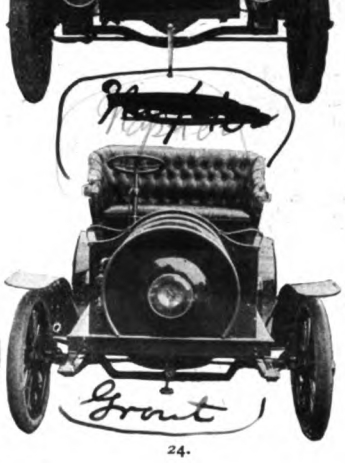
Four-Cylinder Winton. Price $3000.00—First Prize.

Name the Cars Below



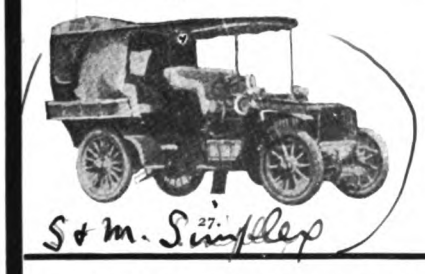




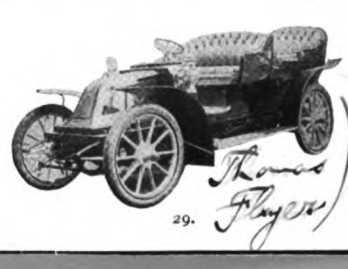














RULES GOVERNING THE CONTEST

Write the name of the cars in the coupon on this page and mail it today—not later than the 20th of January.

Write merely the name of the car, i. e., Winton, Darracq, etc. This issue of MOTOR contains the last instalment of MOTOR'S MOTOR PUZZLE.

The first prize—the $3,000 WINTON—will be awarded to the subscriber for MOTOR naming the largest percentage of the cars correctly. The second prize to the one naming the second largest percentage, etc.

In case of ties another contest will be arranged, or the prizes will be divided by mutual arrangement.

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GRAY & DAVIS



Bullet Gas Lamp

ur car this season.

URY, MASS.

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The Locomobile Company of America

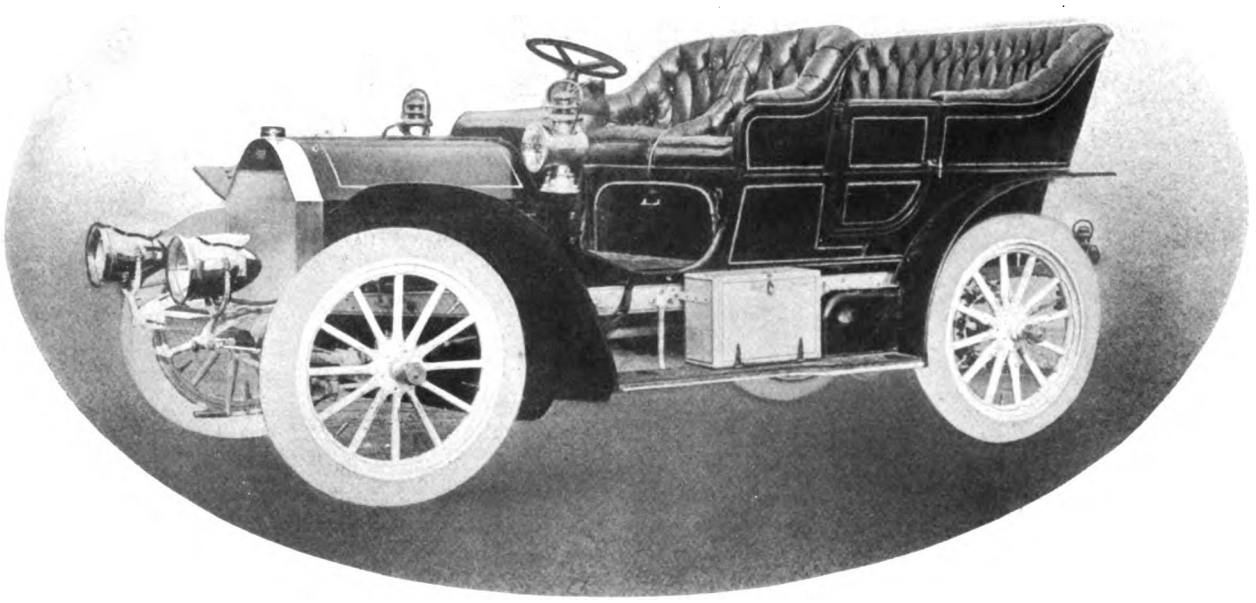
Factory : Seaside Park, Bridgeport, Conn.

BRANCHES

NEW YORK—Broadway, corner of 76th St. **CHICAGO—No. 1354 Michigan Avenue**
PHILADELPHIA—No. 249 N. Broad St. **BOSTON—No. 15 Berkeley St.**

Member Association of Licensed Automobile Manufacturers.

1905 GASOLENE CARS



Above is illustrated our 15-20 H. P. Locomobile, $2,800. Price includes complete set of tools, five lamps of best quality, extra parts and accessories ready for touring. All other models similarly equipped and resemble the 15-20 H. P. model in general appearance. Write for full information to Factory or any Branch Office. Advance Folder Ready.

ALL MODELS HAVE 4-CYLINDER FRONT VERTICAL MOTORS AND SIDE ENTRANCES TONNEAUS. OUR RECORD FOR RELIABILITY, 4-CYLINDER LINE, AND FACILITIES FOR EARLY SPRING DELIVERIES WILL INTEREST AGENTS

15-20 H. P. $2,800

Mechanically-operated valves, all interchangeable. Make and break ignition, current from magneto. Three-speed transmission. Pressed steel frame. Wheel base, 92 inches. Weight, 1,800 lbs.

20-25 H. P. $3,700

25-H.P. motor, with automatic inlet valves and jump spark ignition. Three-speed transmission, with direct drive on top speed. Channel steel frame. Wheel base, 96 inches. Weight, 2,300 lbs.

30-35 H. P. $5,000

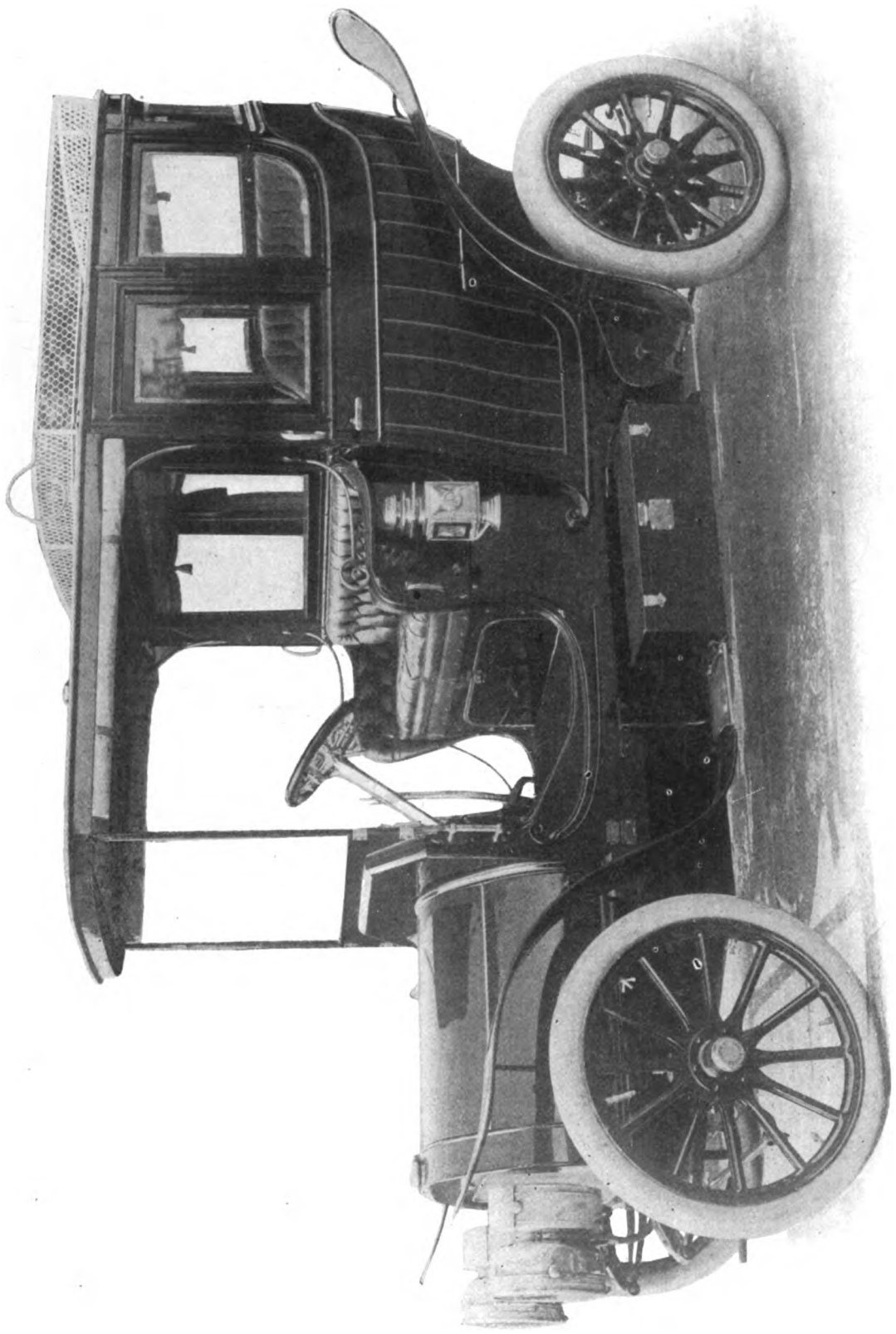
Mechanically-operated valves, all interchangeable. Make and break ignition, current from magneto. Three-speed transmission. Pressed steel frame. Wheel base, 106 inches. Weight, 2,500 lbs.

40-45 H. P. $7,500

Mechanically-operated valves, all interchangeable. Make and break ignition, current from magneto. Four-speed transmission. Pressed steel frame. Wheel base, 110 inches. Weight, 2,800 lbs.

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WORTHINGTON



24-32 H. P. Worthington-"Bollée"

LICENSED IMPORTERS LEON BOLLÉE CARS

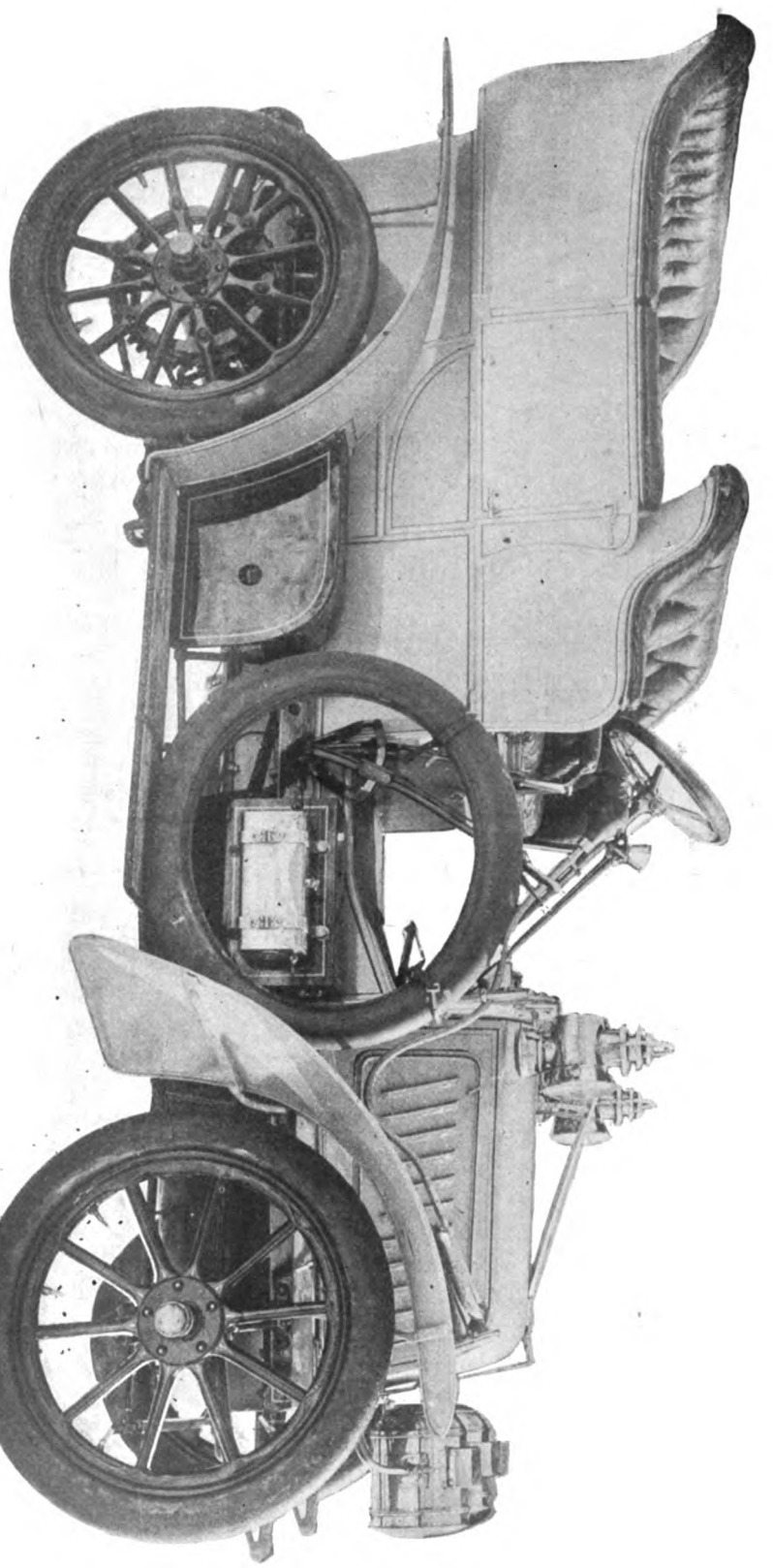
CARS IN STOCK FOR IMMEDIATE DELIVERY

ORDERS NOW BOOKED FOR 1905 DELIVERY

547 FIFTH AVENUE
NEW YORK

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AUTOMOBILE CO.



24 H.P. Berg Touring Car

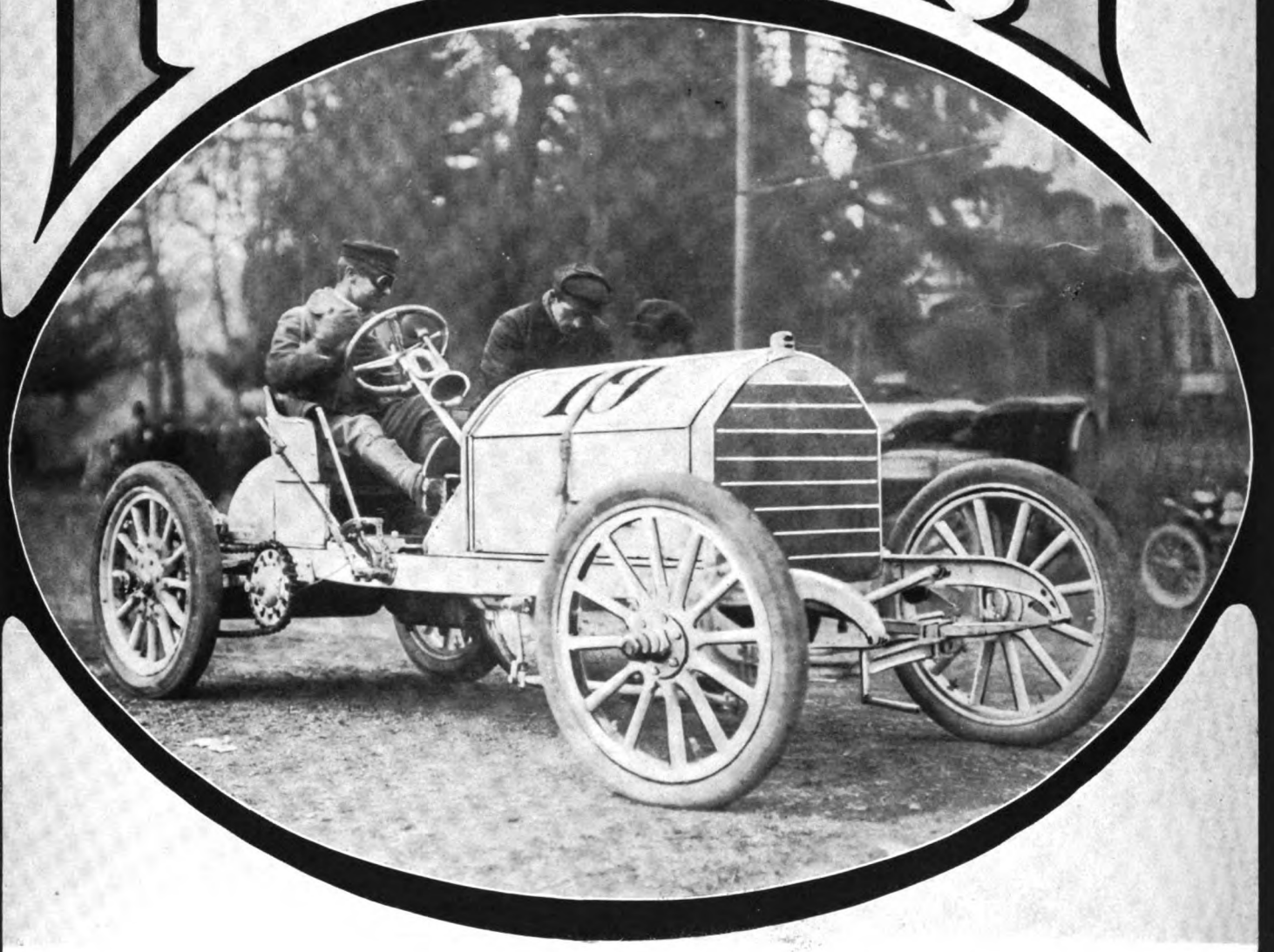
MEMBER ASSOCIATION LICENSED AUTOMOBILE MANUFACTURERS

CARS IN STOCK FOR IMMEDIATE DELIVERY

AND 1 EAST 45TH STREET
NEW YORK

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F·I·A·T



The illustration above shows William Wallace, Esq., in his 90 H.P. "FIAT" Car which won the free-for-all stock car race at Eagle Rock on Thanksgiving Day.

The "FIAT" Car owned by Alfred Gwynne Vanderbilt, Esq., and driven by Sartori, was second; and E. Cedrino, in a 60 H.P. "FIAT," was third.

In the general classification these "FIAT" Cars were in the first six, winning third, fourth and sixth places, thus making the best all-round showing and most consistent performance of the day.

The 90 H.P. "FIAT" Car owned by Alfred Gwynne Vanderbilt, Esq., holds the world's record for road racing, having covered 240 miles at the rate of 72 1-5 miles an hour, without a stop, in the Brescia Race.

Average speed of the Gordon Bennett winner, 57 miles an hour.

Average speed of the Vanderbilt Cup winner, 52 miles an hour.

Hollander & Tangeman, 3 and 5 W. 45th St. New York

SOLE AMERICAN AGENTS

Licensed Importers under Selden Patent

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IMPORTERS' AUTOMOBILE SALON



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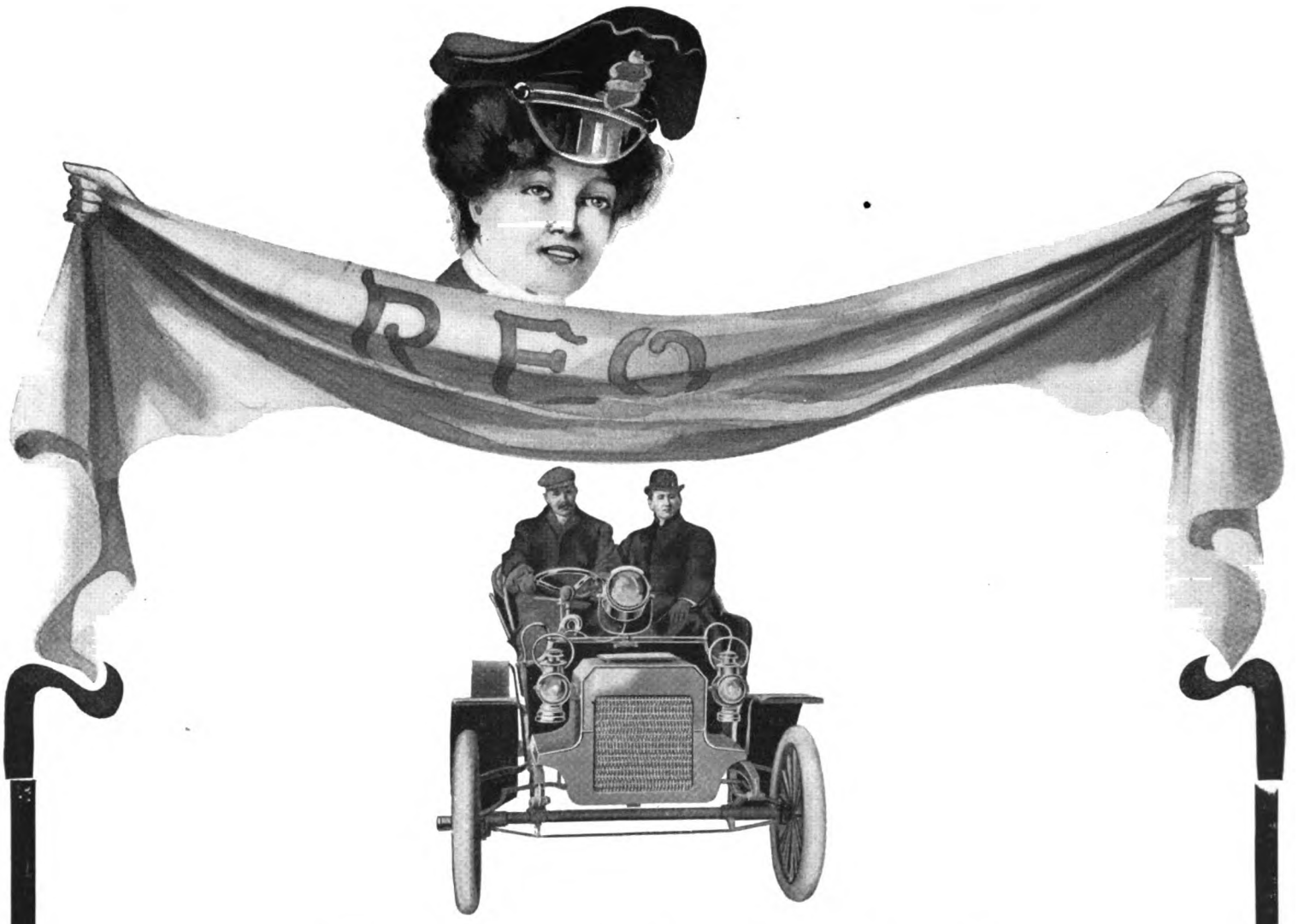
Darracq F.I.A.T.
Mercedes Mors
Clement-Bayard Decauville
Napier Panhard
Renault Rochet-Schneider

Exhibiting 1905 Models
of the best known
Foreign Automobiles.

Pipe Westinghouse
Argyll Puegot
Martini De Dietrich
Hotchkiss De La Haye
Richard-Brasier C.G.V.

HERALD SQUARE EXHIBITION HALL
NEW YORK CITY
From January 11th Until January 24th
ADMISSION 50¢ — **MONDAYS $1.00**

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The Curtain Raised

The Great REO Car

16 H. P., 1450 lbs.

With detachable side-door tonneau

Seating Five Passengers

$1250

Holds the Centre of the Stage

40 miles an hour is its speed without tonneau; 35 or more with tonneau.

This splendid, roomy, speedy up-to-date car was invented and built by Mr. R. E. Olds, inventor and builder of the first practical gasoline runabout, and recognized everywhere as foremost among the world's motor engineers and builders

The secret of its great speed and power is the lightness and compactness of its wonderful engine; worked out on principles originally discovered and demonstrated by Mr. Olds, but now for the first time brought to their fullest perfection.

The entire car is a marvel of inventive genius and constructive skill. Mr. Olds' reputation and ability are back of it and and assure its unqualified success; and all who wish to share in it—agents and buyers—will do well to speak early.

An equally wonderful two-passenger car at $650.

REO Motor Car Co.

R. E. Olds, President

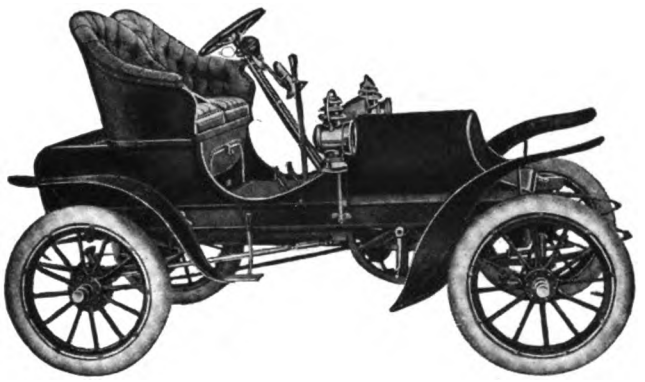
Sales Office: 138 W. 38th St., New York **Factory: Lansing, Mich.**

R. M. Owen, Sales Manager

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The Franklin for 1905

YOU know the *Franklin* for 1904—how it got away from every car in its class (if there *is* a car in the *Franklin* class) in racing and hill-climbing; how it cut the record from San Francisco to New York almost in half (showing speed and endurance); and, best of all, how it proved itself on the road every day as a powerful, light, speedy car, on the level and on the hills.



Type E—Gentlemen's Roadster
FOR TWO PASSENGERS ONLY.

The *Franklin* of 1905 is the same kind of car, only more so, and more kinds. With the same size of engine for the Light Car, we have found a way to increase its horse-power by two—you know what that means. We have taken a hundred pounds from the weight of the *Franklin* Light Car and made a new type of it, Type E—the speediest runabout ever made. We have made three varieties of the *Franklin* Light Tonneau — see below. We have built an altogether new car—20 horse-power, 40 miles an hour—at $2500 and have increased our touring car to 30 horse-power instead of 24. Making altogether

Six Models for 1905

Type E—**Gentleman's Roadster,** 12 H.P., very light and speedy two passengers only, $1400

Type A—**Light Car,** 12-H.P., (same as last year, with improvements and higher horse power), $1500. With detachable tonneau, $1650

Type B—**Light Tonneau,** 12-H.P., four passengers, $1650

Type F—**Light Tonneau,** 12-H.P., five passengers. Solid back tonneau with exit through tilting front seat, $1700

Type D—**20-H.P. Touring Car** with side door, $2500

Type C—**30-H.P. Touring Car** with side door, $3500

All Four-Cylinder Air-Cooled, of Course

It is exhilarating to be three or four years ahead of the rest of the motor world. Hadn't you better get in line with the *Franklin* and see how it feels?

H. H. FRANKLIN MFG. CO., 320 Geddes St., Syracuse, N. Y.

Member Association Licensed Automobile Manufacturers

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16 H. P. Actual—Sliding Gear transmission. Three speeds forward, one reverse. Two levers (French system). Side entrance. Roomy back seat, comfortable for three passengers. No pump. Steel disc clutch running in oil (everlasting and flexible.)

$1550.00
for the present

"Maxwell"

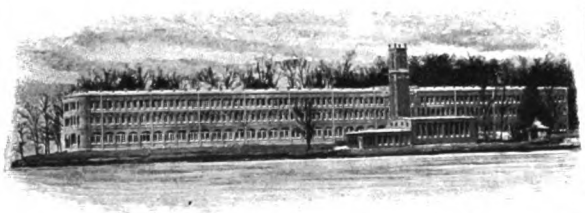
Solves the Automobile Problem

"NOTHING TO DO BUT RIDE"

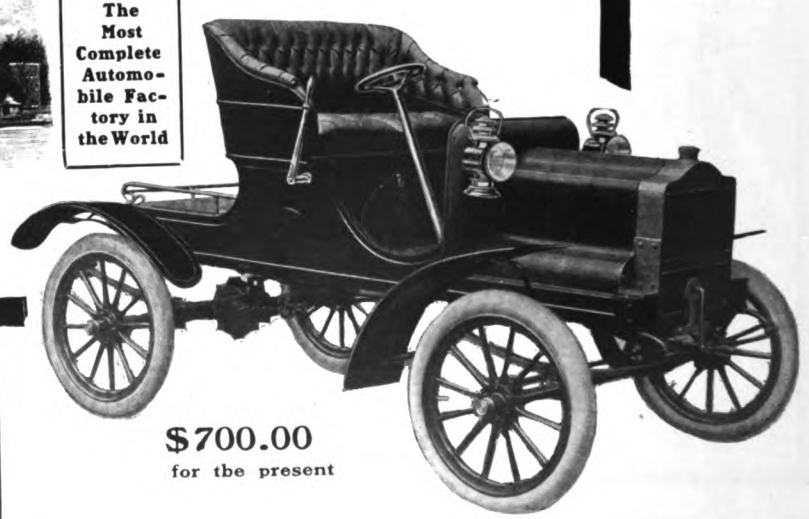
THE advent of the *"Maxwell"* is neither an experiment nor a speculation. It is the culmination of twelve years of constant study and experience in meeting and solving automobile problems. The car is named for and designed by one who from the day that automobiles were made in this country has been closely allied with every improvement and every really practical advance in their construction. Not a nut, not a bolt, not a screw in the *"Maxwell"* but is dictated by experience, fortified by mechanical knowledge and ability. Simplicity has been the key-note of the gradual working out of *"Maxwell"* construction. Simplicity has enabled the manufacturers to keep down the cost while building up the quality. Simplicity has made it in every detail the most complete, practical and satisfactory of modern automobiles. And simplicity is the reason why they are so extraordinarily reliable.

Perfectly Simple. Simply Perfect.

Both the Tourabout and Touring Car have double opposed motors shaft drive in front under hood, every part easily accessible. Bevel Gear Drive. Large Crank Shafts. Metal Bodies. Honey Comb Radiators. *No pump* (Thermo-Siphon). Transmission case and Crank Case Cast in One Piece of Aluminum. Oil Tight—Dust Proof. And Hung on "Three Point" Suspension.



The Most Complete Automobile Factory in the World



$700.00
for the present

Maxwell-Briscoe Motor Co.

Tarrytown, N. Y.

8 H. P. Actual—Planetary Transmission. Two speeds forward, one reverse. Operated with one lever. Bronze band clutches (no leather). High speed clutch, of steel discs running in oil. Practically noiseless and with no noticeable vibration.

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It means actual money to you to read every word of this Announcement and to let it sink right in.

The Orient line of motor cars for 1905 will have the most perfect system of air-cooling of any cars in the world.

The motors will be 4-cylinder vertical tandem type, with cylinders specially constructed for air-cooling, and at the front will be a powerful, six-bladed fan, running at high speed, and keeping the engine as cool as the best water-jacketed engine ever built. A system of specially arranged flanges adds to the effectiveness of the fan.

Another winning feature of the Orient will be the new mechanical valve which makes the Orient motor run absolutely without noise.

Bear in mind that none of this is experimental. We have more than *three thousand* air-cooled cars actually running, and are better equipped in experience and engineering ability than any other maker in the world to produce a perfect air-cooled motor.

And we have produced it.

One thing more—the Orient line this year will be the first *complete* line of motor-cars ever put on the market by any manufacturer. There will be eight (8) Orient cars as listed below, giving every dealer who handles them a complete line from $375 to $2,250.

In beauty of design and coloring, and in distribution of weight, these cars are so unique and exceptional that we refuse to illustrate them until later in the season, when they cannot be copied this year.

Watch for the specifications in the next number of Motor.

ORIENTS FOR 1905

THE BUCKBOARD LINE				THE TOURING CARS			
Buckboard,	Model A,	4 H. P.,	$375	Touring Runabout,	Model E,	14-16 H. P.,	$1500
Surrey,	" B,	4 H. P.,	450	Light Touring Car, with Tonneau,	" F,	14-16 H. P.,	1650
Runabout,	" C,	4 H. P.,	475	Touring Car,	" G,	18-20 H. P.,	2000
Tonneau,	" D,	4 H. P.,	525	Touring Car,	Model de Luxe,	18-20 H. P.,	2250

We positively state that our Touring Cars for 1905 will combine lower weight with continuous higher power than any other cars made.

Waltham Manufacturing Company

Selling Office for New York, Pennsylvania, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia and Florida.

44 Broad Street
New York City

Factory and General Sales Office:
Waltham, Mass.

PASTE THIS IN YOUR HAT:

We are going to push the Orient line in 1905 as no line was ever pushed before.

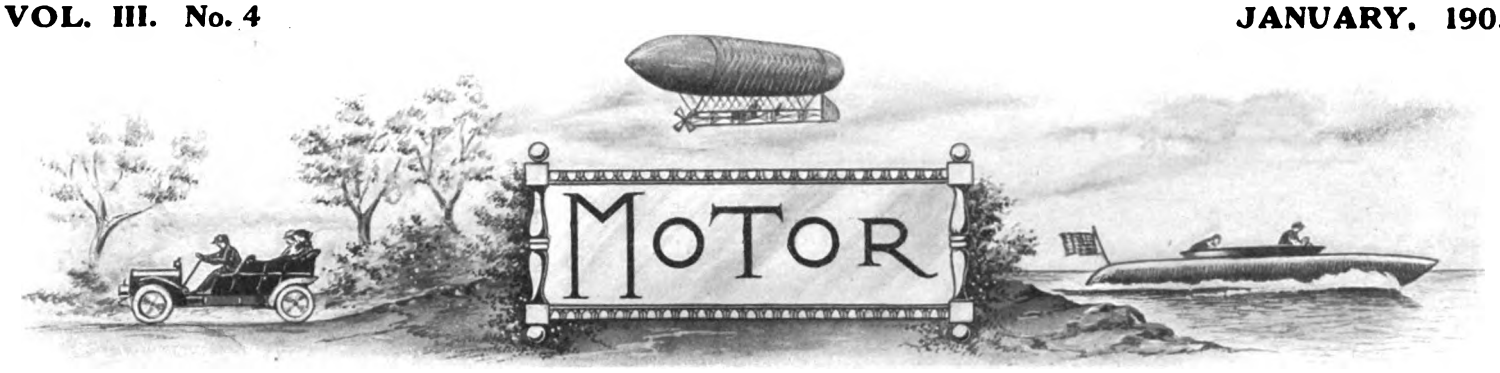
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At the Paris Salon

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VOL. III. No. 4 JANUARY, 1905



THE PARIS SALON

By Monsieur Carbureter

PARIS, Dec. 25.—The seventh Exposition Internationale de l'Automobile, du Cycle, et des Sports was voted the finest on record, even as last year's exposition was observed to be superior to the one of the year previous. It is safe to say that no industry has ever been presented in exposition form with such grandeur and such elaborateness of detail. The sight of so many gorgeous stands and exhibits, costing vast sums of money, caused the spectator to reflect and say to himself: "Somebody is making money out of this business."

This year at the Grand Palais all the spaces were diminished in order to accommodate a greater number of exhibitors, and, while there was much grumbling on account of the necessary crowding, the effect, as regarded the *coup d'oeil,* was better than ever. There was more lighting and greater multiplicity of colors. In the evening, when the upper decorations were turned on, nearly all eyes were carried up to the dome of the building, where a magnificent sunburst filled the center and afforded a blazing nucleus from which ran down the long strands of electric lights.

Paris has had seven automobile shows, dating from 1898. Previous to that year, the firms of de Dion Bouton and Werner exhibited their pioneer "tricycles-à-pétrol" in spaces condescendingly placed at their disposal by the managements of the cycle shows. The auto shows of 1898 and 1899 were held under a tent in the Tuileries gardens, and when the weather was bad the raindrops dripped on the decorations and dress suits. Next year the show was held in the Grand Palais, in the Champs Elysées, and it has remained there. The Grand Palais has already proved insufficient for the purpose, and now there is talk of building a special hall, to be known probably as the Palais des Sports, which will be big enough to render unnecessary all "kicking" because of stingy allotments of space.

The Exposition is held under the auspices of the Automobile Club de France and under the direction of M. Gustave Rives as commissioner-general. The ability and tact of M. Rives in this capacity have become almost proverbial. Among the many others who devote time and energy to the enterprise are Baron de Zuylen, president of the Automobile Club, both the Richards, René de Knyff, and Mr. Darracq. The Exposition was, as usual, inaugurated by M. Loubet, president of the Republic, who made the customary round of the exhibits and complimented the exhibitors on the attractiveness of their booths and articles displayed.

The general scheme carried out at the exhibits embraced that of a superposing arch, enabling the firm to hoist its name sufficiently high in the air to become conspicuous.

The Oldsmobile arch was of graceful Greek design, with simple Ionic columns. The entire color scheme was light in tone, and the letterings and decorations were mainly in electric lights, with a very pretty effect in gilding. The Renault stand was surrounded continually by a dense crowd. The material used in the arch was open iron work in leafy design, very rich in appearance, and costing a considerable sum of money. The Hotchkiss stand was grouped under an elaborate crystal arch, which at night made a "stunning" show. Naturally, Henri Fournier was on hand to tell of the "merveilles" of the Hotchkiss. The Clément-Bayard stand was the same as last year, a fine conception in forged iron work, which excited general admiration. In the de Dion-Bouton combination of decorations, red autumn leaves formed the principal part, the vines and leaves being entwined about the arch and down the supports, while the letterings in colored electric lights completed an *ensemble* that was indeed effective. The Pope-Toledo arch was of graceful Renaissance design, in cream and gold shades. The Pope "châssis" seems to pass inspection very well in comparison with the native products at the show.

To walk into an exposition and see the name "Pope" placarded in big letters was the most natural thing in the world, and it was specially natural to an American in Paris who retains distinct recollections of the many shows in American cycle history, after passing the entrance of which the people were pretty sure to see "Pope" without the necessity of searching.

Continuing on the subject of arches, I must mention that the arch over the exhibit of the Westinghouse company was of Roman design, in white and gold, with a screaming American eagle on the top.

Crowds gathered as of old, around the displays made by the "old" houses, like Mors, Renault, Panhard, Darracq, Richard-Brasier, Clément, de Diétrich, etc., while curiosity was raised by the apparition of the Westinghouse, Delaunay-Belleville, and Berliet.

Italy was again represented in good style by the Fiat, while Switzerland, in addition to the Martini, sent the product of the enterprising Dufaux Brothers.

The impression among many Frenchmen is that the keynote of the American automobile production is "wholesale and cheap." This designation admits of interpretations as you like. As far as the American display at the Paris show was concerned, the Oldsmobile attracted even a bigger crowd than last year, and the Pope-Toledo stand evoked many expressions of admiration. Briefly told, the exhibition this year brought to view stronger frames, stronger axles, better clutches, more simplicity in circulation, and more improved systems of oil distribution.



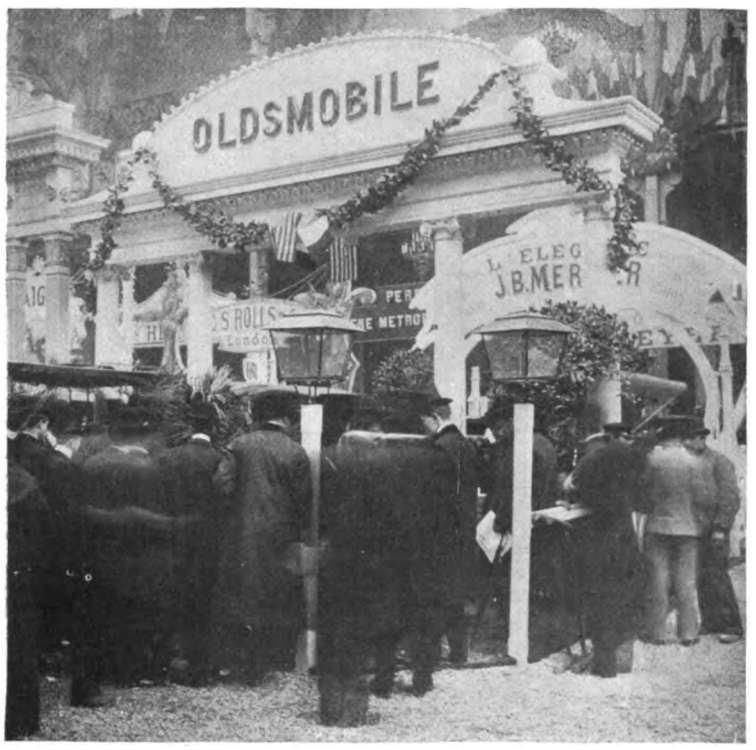
Fraulein Mercedes Jellinek-Mercedes, beautiful and only daughter of Herr Jellinek-Mercedes, the designer and builder of the famous cars, which he has gracefully named after her.

Taking a glance at the horsepower in the array for 1905, one observes that the Mercedes 18 horsepower is practically no more, the 28-32 and 40-50 coming to the front as specialties. Panhard adds a 50 to its 24 and 35, while Mors presents a 40-52 which gives considerable promise. Renault makes a jump from 14 to 20, with four cylinders, of course.

Lengths of frames are all very close to 2 mètres 40 centimètres.

In *carrosserie,* the pioneer tonneau has been almost relegated to the dead past. There exists at present an unrestrained craze for closed coachwork which will have its reaction as soon as the public returns to the first principle in motoring benefits—namely, fresh air. Just now, however, it's a hurly

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EXAMINING A POPULAR AMERICAN PRODUCT

burly for coupé-limousines and side entrances and cushioned seats and mirrors and pockets, in which to place the visiting list, the clock, and everything else except the Bible; hence the saner period is not due yet a while.

The coach builders this year have done wonders, as was shown in the exhibits of Mülbacher, Lamplugh, Kellner, Rothschild, and Labourdette. The Lamplugh firm showed a "coupé docteur" of very novel design and a comfortable limousine with reclining chairs, besides several other striking models. The exhibits by Rothschild, Kellner, and Mühlbacher were comprehensive of all that is finely finished and luxuriously upholstered in this line.

The Renault list for the coming year is as follows: 8-9 horsepower, one-cylinder; 10-14, two-cylinder; 14-20, four-cylinder, and 20-30, four-cylinder, the last named being the firm's principal novelty. The Renault motor has a single cam shaft, the valves being set on the same side of the motor. This shaft is cast solid with the cams, hence there is none of the keying and riveting that frequently give trouble. The ignition is accomplished by means of Simms-Bosch magnetos.

The brand new Westinghouse-Schmid Company shows a 20-28 frame, with a Rothschild body in coupé-limousine form. The verdict is that there is room on the market for the newcomer.



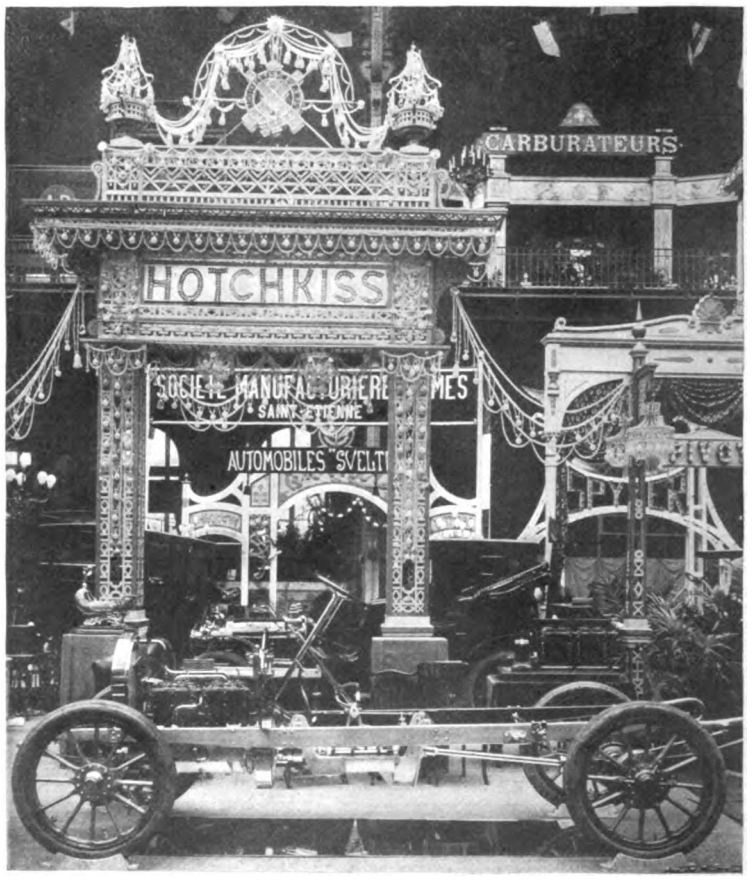
THIS AMERICAN EXHIBIT CREATED WIDESPREAD INTEREST

The Mors exhibit, ever popular, comprises "châssis" of 24-32 and 40-52 horsepowers, the latter being the new article for the season, while the entire Mors list includes the 12-16, 14-19, and 19-24 in addition. Other Mors details are: Pressed steel frames, four-cylinder motors, magneto ignition, and, in the form of a novelty, a new carbureter with double air intake. The 24-32 and 40-52 horsepowers are fitted with decompressors to facilitate starting.

Panhard specifications include: Separated cylinders, crank shaft supported by five bearings, also the scheme of decreased compression for starting. The machines exhibited are regular models. The Panhard new "fifty" is this firm's main "talker." The machinery is protected by an aluminum shield and it thus works in an oil-saturated atmosphere. The gearing of the 50 horsepower is different from that of the racing machines in the fact that it controls a different shaft working two pinions instead of a revolving axle. The Panhard company maintains that for touring machines there is nothing better than the system of chains and fixed axles.

In the electric line the main displays are made by Kriéger, Gallia, Mildé, Electromotion, and the Electromobile companies. A feature of the vehicle made by the Société Electromotion is the arrangement by which the motors, instead of acting on the driving wheels by chains and pinions, are situated in the rear wheels and turn with the same. This method is very appropriately called the "Silencieuse" because it is practically silent.

Specifications for some of the best known marks are as follows: Clément-Bayard shows a 24 and a 35 horsepower, four cylinders, all separate, with chain transmission. Maximum



THE CAR BUILT LIKE A GUN BY GUNMAKERS

speed on the level for the 24 horsepower, 80 kilomètres an hour, and for the 35 horsepower, 100 an hour.

Gobron-Brillié shows a novelty in the form of the "embrayage," which is constructed of two cones of different diameters. The smaller cone enters before the larger, and produces the grip with no slip nor wear.

Hotchkiss has three styles of frames. The 17-25 horsepower is of nickled steel, reinforced, with four-cylinder motor, mechanically operated valves crank shaft on ball bearings, all mechanism sheltered underneath by an aluminum protector, with openings to permit of easy access. The 30-40 is practically the same in details, and the 60 horsepower is the racer type.

M. Charley was displeased with his allotment of space at the Grand Palais, so he decided simply to hold an exposition of his own, all about Mercedes, at the Mercedes Palace, Avenue des Champs Elysées. The building was lavishly decorated within and without with electric lights and flowers, and M. Charley's "show of his own" apparently was very successful,

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A VIEW OF THE CENTER OF THE GRAND PALAIS, LOOKING TOWARDS THE MAIN ENTRANCE



ANOTHER EXCELLENT VIEW OF THE GREAT EXPOSITION LOOKING FROM THE MAIN ENTRANCE

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PAL, THE FAMOUS ARTIST, AT WORK ON ONE OF THE PANELS FOR THE IMPORTERS' SALON

judging from the number of visitors. The regular Mercedes models for 1905 are 28-32 and 40-45 horsepowers. Frames 2.20 to 2.40, and 2.60 for side entrance coach work. The Mercedes motor is almost the same as last year—that is, with mechanically operated valves on each side, and the change-speed gear also remains the same.

I met Sidney B. Bowman at the Clément-Bayard stand, and he said: "I am carried away by the beauty of this show. It is enormous, overwhelming."

E. R. Thomas, of Buffalo, was gazing at the mazes and combinations of brilliant color and contrasting shades when I asked him for his impression of the exhibition. He said: "Words fail me for expressing my admiration of this wonderful display. It beats the world. The French are ahead of everybody in automobile shows."

At the show there was the same trade fever, same kind of talk, same stories of big sales, same "entertaining" of out-of-town agents—in Paris, as in New York—as was the case at the cycle show a few years ago.

In the middle of the booth, the decorative fringe of which consisted largely of palms and red rope, was the head of the firm, in evening dress, explaining something to all who could crowd into the enclosure. On the outside a hundred persons were looking over hats and past ears in an attempt to hear or understand what that "something" could possibly be. One of the multitude, by accident, heard, didn't understand, passed on, and was succeeded by the next ignoramus.

Displaying the naked frame ("chassis") carrying the motor and other mechanical parts, all polished up as bright as the Whiz bicycle which was going to drive Pope out of business, was still the vogue. It's a good scheme. In the glamor and excitement, with the pink tone of the combined illuminations settling upon burnished handicraft, that generous branch of humanity known as the "general public" accepts appearances as the guarantee of quality. Not that I would brand all these pretty "châssis" as deceptions—for the first-class machines are exhibited in the same manner—but nickled cylinders and silver-plated pipes certainly do not insure the purchaser of the outfit against being left some day "en panne" forty miles from petroleum.

The closing night of the Salon's fortnight, Sunday, the 25th, a vast crowd thronged the Grand Palais, a real holiday crowd in which it was difficult to find a genuine purchaser. The tide of interested people flowered in to hear tombola results and listen to the music of the orchestra and the singing of the artists from the opera.

The Grand Prix of the Automobile Club de France was awarded to the Hotchkiss firm.

The motor boat feature, though in another building, commanded much interest during the Salon. One afternoon half a million persons stood on the banks of the Seine between the Pont Nicholas and Suresnes to see a race.

The contestants were *La Rapee III.*, the *Titan II.*, the *Suzy*, the *Hotchkiss* and the *Trèfle-a-Quartre*. The *Hotchkiss* won, covering the fifty kilometres in little over 1h. 23m., winning the Coupe du Salon.

THE 1905 AMERICAN SHOWS

Though this is the season when motoring's actual progress is at its slowest, the fact is one that has its compensations. Soon, in all the large cities, the various shows that have come to be established institutions of motordom, upheld by trade and public alike, will be flourishing in all their interest and novelty. At them the visible evidences of the year's accumulated triumphs in motoring will reach their climax, the propaganda of the new conveyance will receive fresh impetus, and the fast-multiplying signs of a motor millenium and of horseless highways will impress themselves on many minds.

The motor car, the motor boat, the motorcycle, all manner of motor accessories, and perhaps even an occasional airship, will be on view for all who wish to see. Advertising literature will be distributed by the ream and the wagon load, and facts —concerning price, performance, and principles of operation— will confute the theorizing of the hardiest skeptic or the most-confirmed horse user.

The first of the shows will be the Importers' Salon, open in Herald Square Hall, New York City, for two weeks, commencing January 11, and at which all of the best-known European cars de luxe will be exhibited.

Then will come the annual show of the National Association of Automobile Manufacturers, in New York's immense assembly hall, Madison Square Garden. This show will open on January 14, and continue eight days, and at it practically every American and several foreign manufacturers of prominence will be represented.

Philadelphia will follow New York, with a show running a week from January 23. The second show of the National Association of Automobile Manufacturers, in the Coliseum, at Chicago, will begin February 4, and continue eight days.

Detroit, where more motor cars have been made than in any other city in the world, will have a show lasting from Monday, February 13, to the end of the week.

Madison Square Garden, New York City, then will bid again for attention, this time with the National Motor-Boat and Sportsman's Show, at which motoring afloat will have its innings.

From this show the scene will shift to Cleveland, February 27 to March 11; to Toronto, Canada, February 27 to March 4; to Buffalo, March 5 to March 11; to Boston, March 13 to 18; and to Washington, March 27 to April 5.

For the information of the many thousands who will attend these shows, the supplement accompanying this issue of MOTOR has been prepared. In this supplement practically all prominent makes of motor cars, domestic and foreign, are illustrated and described. The description of each car is in the form of a single line, running through an ingeniously-arranged table, by means of which all essential details, of interest to prospective purchasers and others, and concerning price, construction, and operation are clearly set forth.

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THE GROWING GOSPEL OF GOOD ROADS

At the first annual convention of the Monroe County (N. Y.) Good Roads Association, Frank Z. Wilcox, a vice-president of the National Good Roads Association, in his address made apparent the rapid progress of the growing gospel of highway improvement. Herewith are extracts from his interesting and promising address:

The ..ational Good Roads Association is broad in its scope, character and work. Its parish is the whole country, and the field of its operations is not shorter than it can stretch itself upon, neither is its aims, plans, and theories so narrow that it cannot wrap itself in them. It seeks to extend and maintain its efforts and work for good roads wherever the curse of bad roads is found. Its organization was born of necessity and by precept and example seeks to give the people the best experience and progressive theories in road building and road maintenance.

It has carried the contest for good roads to the halls of Congress, and by earnest, concentrated effort shown to the national Congress that the people are waking up to their needs and demanding in no uncertain tones that to which they were entitled, appropriations to several States from the National Government for the purpose of making possible the improvement of long, continuous lines of inter-State highways under State supervision.

Several bills looking to this end have been introduced into the national Congress by friends of the good roads cause, and in some equitable form a bill must speedily be passed giving the people what they are demanding and to which they are entitled, or the place that knows these servants in authority will know them no more.

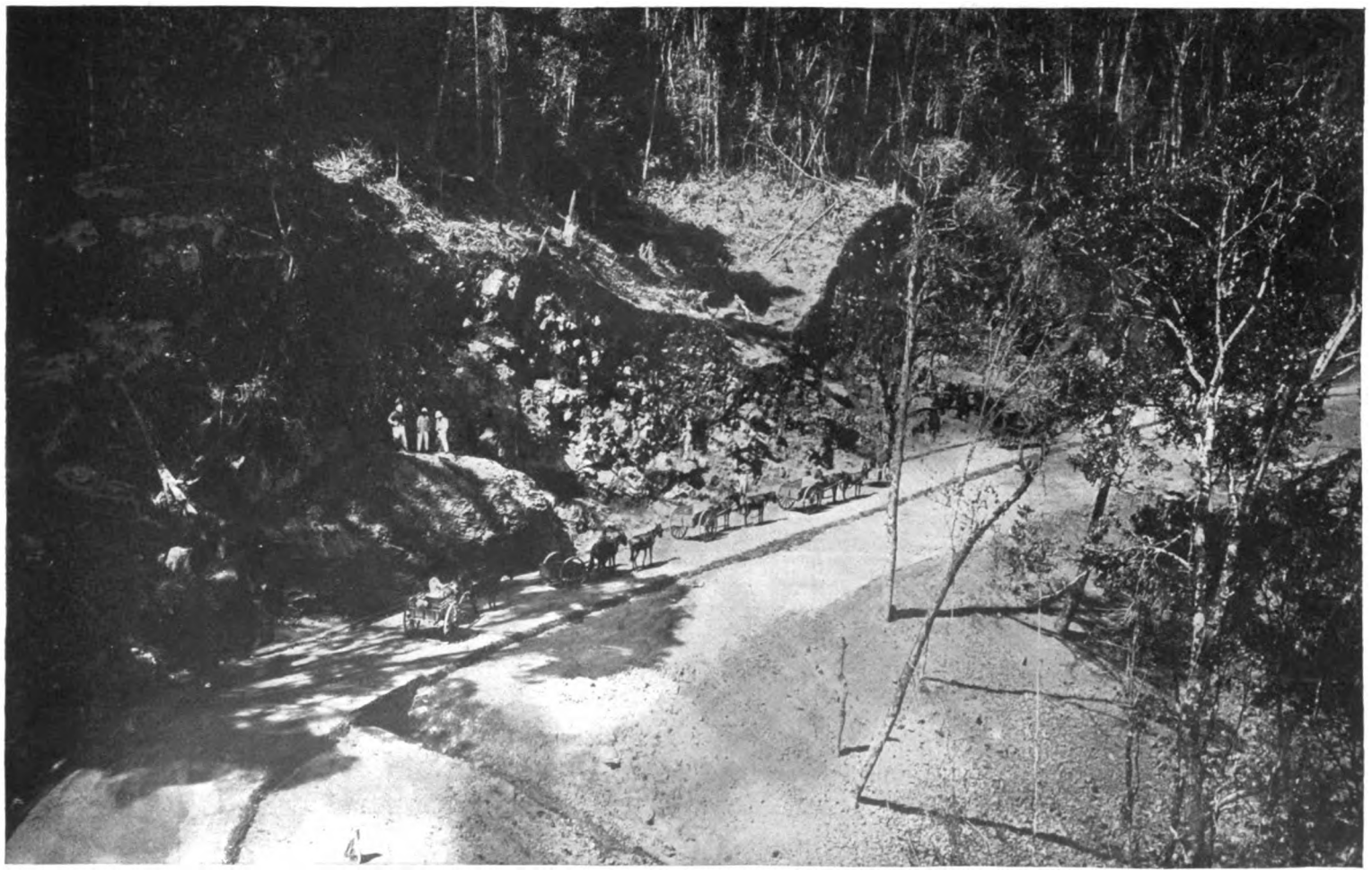
The plan proposed in giving national aid to the several States is upon lines similar to that of the "Fuller Plank" statute in New York State, whereby the State pays to each town 50 per cent. of all the money such town will raise for road purposes under the "money system." For more than ten years the statute has permitted towns to change from the "day labor system of taxation" to the "money system," but very few towns availed themselves of this right till the statute, by amendment, offered a bonus of 50 per cent. to every town making the change. Since the amendment of this act, about four years ago, giving the bonus of 50 per cent., nearly one-half the towns in this State have changed from the old, barbarous, antiquated day labor system to the "money system" for the care and maintenance of their highways. In the same way, every State in the Union will undertake highway improvement if the National Government will make appropriations in a similar manner that this State is now doing for the towns. On these lines, the National Good Roads Association is seeking to commit the National Government to the cause of good roads.

It is only six years ago that the celebrated Higbie-Armstrong statute was enacted in New York State. Since that time, under its provisions, the State has constructed, or has in process of construction under the provisions of that act, more than 700 miles of macadam highway, while localities have already petitioned for more than 4,000 miles of such roads. The first appropriation made by the State in accordance with this statute was $50,000. This year the appropriation amounted to $1,100,000, and all this, exclusive of the work done and money paid to the towns working under the money system.

There is now pending in New York State a proposition to bond to the amount of $50,000,000 for road improvement under the provisions of the Higbie-Armstrong act. This proposition to amend the Constitution, authorizing such a vast expenditure has already passed one Legislature, and if approved by the 1905 Legislature, will then be submitted to the people for approval or rejection. If this proposition is adopted by the people, within the next decade all the main highways in this State will be improved roads of a splendid character. There are now seven States which have enacted statutes authorizing State aid and supervision of the highways within their limits, and many other States will undoubtedly do so in the near future.

From all this work springing from the efforts of the National Good Roads Association and results already attained, I am sure road improvement of the kind that the people demand will, in this country, soon become an accomplished fact, and no longer shall our agricultural interests be burdened with roads that are a disgrace to our civilization, scarcely better than those of the Orient, and infinitely worse than those of the pauper countries of Europe.

This association has held several national conventions in different parts of the country and among its speakers and advocates there have appeared eminent men from every walk in life, including such distinguished citizens as President Theodore Roosevelt and Colonel William Jennings Bryan. It has organized and conducted scores of State and local conventions wherever the call came in behalf of good roads. It has interested great railway corporations to run special good roads trains over thousands of miles of railway, carrying the best kinds of modern road machinery, supervised by expert engineers, and has actually constructed in many parts of the country sample sections of suitable roads, so that the people might not only be given a theory of good roads, but an actual demonstration in road building. Through its agents it has gone up and down the country proclaiming the gospel of good roads.



A SAMPLE OF EXCELLENT FRENCH ROAD CONSTRUCTION IN MADAGASCAR

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FIRST PRIZE, CAPT. ROBERT GRAHAM, OF PHILADELPHIA. DECORATIONS IN JAPANESE EFFECTS, WISTERIA AND CHERRY BLOSSOMS.



SECOND PRIZE, C. W. C. DEERING, OF CHICAGO DECORATIONS IN MASSES OF CARNATIONS, ASTERS AND CHRYSANTHEMUMS



THIRD PRIZE, H. A. WILDER, HONOLULU. CAR COVERED WITH PURPLE CLOTH, BUNCHES OF VOILETS SPREAD OVER IT

A MOTOR FIESTA IN HAWAII

Where but a few generations ago wheeled vehicles were unknown, and the arrival even of the first carriage was looked upon as a great event in the history of a rising city, it is well-nigh revolutionary to contemplate a parade of decorated motor cars; yet such was the transition viewed by many of the people of Honolulu on Thanksgiving Day. How deep Hawaiian interest in motoring has grown may be summarised in the statement that a score of cars gathered in Palace Square to await the verdict of the judges, and the sidewalks and the square itself was filled by several thousand people at least, who were attracted by the novel and striking spectacle.

Technically the affair was designated a floral motoring parade, and the cars were classified tonneaus, convertible touring cars, surreys, and dos-a-dos, and runabounts. In the first division three Whites and one Rambler were found; in the second, five Olds and one Ford; in the third were two steam Locomobiles; in the fourth, three Olds, one Pope-Tribune, one Holly, one locally-assembled car, and an Orient buckboard—a goodly array for a little city in the middle of the ocean, which a year ago had not more than a half dozen.

The schemes of decora- showed as wide a range of taste as existed between the striking White steamer at the right and the skeleton-like Orient buckboard at the left of the line. The prize winner turned up in the car of Capt. Robert Graham, of Philadelphia, it being done in Japanases effects. Over all was a canopy of feathery bamboo from which depended wisteria and cherry blossoms and those eccentric decorative accessories that characterize the taste of the little brown man. The young ladies in the car were in kimonas, with the Eastern headdress, and the entire effect was cunningly brought out. In the car of C. W. C. Deering, of Chicago, which won second place, was produced an effect more perfectly floral, for from the wheels to the top of the carriage the structure was well-nigh hidden under masses of carnations, asters, and chrysanthemums. The passengers all were in white and looked like flowers themselves. Suspended far ahead, on trembling wires, a resplendent peacock seemed to float along, driven by two white doves, who perched on top of the lamps. A mass of violets, the design of H. A. Wilder, won third prize for its beauty and uniqueness.



FIRST MENTION, A. A. YOUNG, HONOLULU. CAR DONE IN WHITE DAISIES AND CHRYSANTHEMUMS. LADIES IN WHITE.



SECOND MENTION, E. M. BOYD, HONOLULU. CAR DONE ENTIRELY IN LEAVES AND BLOSSOMS OF THE SUGAR CANE.



CAR DONE IN ILIMA YELLOW LEIS, WITH THE COAT OF ARMS AT THE FRONT, ENTERED BY GUS SCHUMAN

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The Climbing of Hills



BY A. G. Batchelder

Nothing emphasizes more thoroughly the worth of a motor car than the climb of a steep grade. More than lame in this particular, as many an exasperated pioneer will bear witness, the early vehicles puffed and grunted and failed repeatedly on inclines now looked upon as child's play. The sight of passengers lending aid in the surmounting of mediocre hills was a ridiculous spectacle, amusing to horse owners and wearying to pleasure-seeking motorists.

Gradually the climbing abilities of the motor car have increased from ordinary grades to trying hills and finally to rugged mountains that reach into cloudland.

So rapid has been the progress of the motor car in its clambering capacity that on several upgrade courses the limit of speed has been reached and exceeded, until danger lurks in no uncertain form. In this kind of competition the skill



BERNIN AND THE RENAULT WINNER ASCENDING EAGLE ROCK

and the nerve of the driver are put to a severer test than in straightaway flying or track circling at greater speed. Abrupt turns, shifting surfaces on the road, sand and rocks intermingled, all tend to make the task difficult and hazardous.

The year began in this country with a Patriots' Day swirl up the easy incline known as Commonwealth Avenue Hill in Boston. H. L. Bowden, with a Mercedes, and H. B. Hill, with a Georges-Richard, subdued the nub of a hill in exactly the same time, while F. H. Marriott, Jr., accepted defeat with a Stanley steamer by the margin of a second. The previous year the steamer had appropriated the honors. Of course, the gasoline machines had an excess of horsepower, but the indiscriminating public is inclined to award all of the flowers to the big fellow, forgetting the plucky fight of the little chap.

The grand test came in July up the precipitous sides of Mount Washington. Once more a greater powered gasoline machine disposed of its steam rival, but only after a magnificent battle in which F. E. Stanley, with his 6-horsepower runabout, nearly divided the honors with Harry Harkness and his 60-horsepower Mercedes. The gasoline beast ate up the winding climb in 24:37 3-5, while the natty little steamer traveled the eight miles in 28:19 2-5. On the first day of the contests Mr. Stanley more than held his own, and the record passed successively to five different holders, the Stanley standard having 31:41 2-5 chalked on it at sundown. But Harkness, the Heedless, came along the next day, and though he knew naught of Mount Washington, he started for its summit like a madman, arriving in a cloud of impenetrable mist and establishing a record that discouraged any further attempts.

California had a climb in August at Monterey, one and five-eighths of Carmel Hill serving as a course. This meet, in one of the most picturesque parts of the Golden State, was confined to stock touring cars stripped for racing purposes. Burt Dingley, with a Pope-Toledo, excelled in the free-for-all. In his report of the affair, Mr. Gates commented upon the fact that another year there must be better policing, or there would be tragedies to record. This same comment was made concerning the Commonwealth climb, and will bear repetition in relation to Eagle Rock.

The third annual Eagle Rock series on Thanksgiving Day excelled in point of interest and abundance of competitors anything ever seen before in this country. The close proximity of the Oranges to the metropolitan district assisted materially in the prevalence of entries, as well as the presence of the thousands of spectators, who overran the course and appeared happiest when in the path of the ascending machines. That no one was injured must be considered a miracle, for repeatedly



W. K. VANDERBILT, JR., IN HIS 90-HORSEPOWER MERCEDES

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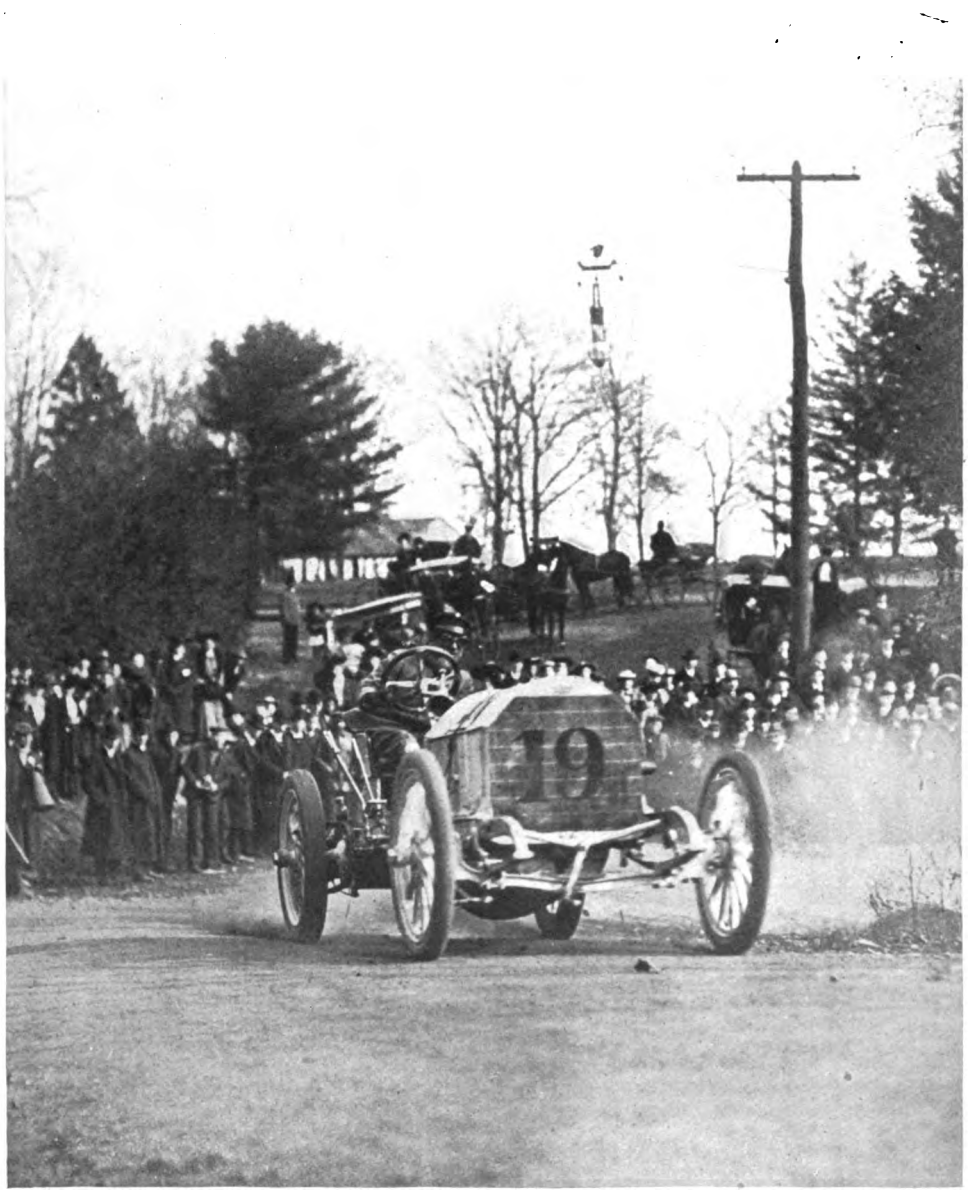
the foolhardy had narrow escapes from serious accidents. It is hardly probable that President Harlan W. Whipple of the American Automobile Association another year will care to indemnify the township from all damage suits that might result from the hill climb, and it may be that the Automobile Club of New Jersey will reach the conclusion that the limit of speed has been reached in the climbing of Eagle Rock.

Possessing the record of the previous year, 1:36¾, with a 60-horsepower Mors, W. K. Vanderbilt, Jr., reappeared for the purpose of retaining his well-earned honors. At the outset of his second climb—having previously competed in another class—Mr. Vanderbilt was interfered with by an offending spectator who ran across the road and undoubtedly compelled him to hesitate in the speed at which he would have gotten away. But it was at the top on the concluding turn of the mile climb that young Bernin, the paid chauffeur of W. Gould Brokaw, handled his employer's Renault in such skillful manner as to obtain a clocking in 1:20 for the distance. Bernin only had this single climb of the hill, and it was in the free-for-all class.

The McMurtry timer registered 1:20 3-5 for the Vanderbilt Mercedes, and one could hardly blame the driver if he had shown, under the circumstances, some disappointment at the loss of his honors by a measly three-fifths of a second, but, good sportsman that he is, Mr. Vanderbilt gracefully congratulated the youngster who had, on this occasion at least, excelled him.

In all classes the records were smashed, and the time told plainly of the wonderful advance made by the motor car in one short year.

William Wallace, the nervy amateur from Boston, piloted his Fiat successfully in the class for stock cars, doing the climb in 1:23 4-5, as against 1:24 1-5 for Paul Sartori and the A. G. Vanderbilt Fiat. In this same class W. K. Vanderbilt, Jr., required 1:26 3-5 for the task by his 90-horsepower Mercedes. In the free-for-all Mr. Wallace reduced his figures to 1:22, Sartori did 1:22 1-5, while Webb Jay and his 15-horsepower White accomplished something exceptional with a climb in 1:23 3-5. This 15-horsepower White had won the class for steam vehicles with a first ascent in 1:28 2-5.



WILLIAM WALLACE, THE BOSTONIAN AMATEUR, IN HIS WINNING FIAT

In this same steam class E. J. Foley, with a 7½-horsepower Prescott, obtained some of the glory by the figures of 1:52 2-5, beating a 10-horsepower Stanley.

The Eagle Rock programme provided for a generous number of classes, and the other winners included a 40-horsepower Decauville, a 12-horsepower Franklin, a 24-horsepower Waltercar, a 40-horsepower Thomas, a 14-horsepower Columbia, a 22-horsepower Buick, a 6-horsepower Oldsmobile, and a 3-horsepower Torbensen.

Providence also had a Thanksgiving Day climb. John L. Snow, with a Peerless, and A. E. Adams, with a Pope-Toledo, both ascended the River Point one-third of a mile elevation with a 14 per cent. grade in 48 seconds, and in the run off of the tie the Peerless accomplished the task in 46 seconds, as against B. F. Blackinton's 47 4-5 with a Stanley. The previous year's record on the hill was 1:04, and with a new mark of 46, the inference of improvement is decidedly plain from a mechanical standpoint.

Racing up inclines was a favorite kind of competition in Europe before its beginning here. In England the Bexhill meet, confined to touring cars,, proved exceptionally notable, even though the grade offered small obstacles. In the unrestricted price class the Mercedes did the kilometre in 46 4-5 seconds from a standing start. The Darracq won in two classes, the Napier in another, and the Duryea took the class for cars costing $960 or under.

In France the two big climbs attracted unusual interest, and the promoters had the good sense to confine the Chateau-Thierry events to touring cars, while the Gaillon contests provided for the racing contingent. The surprise at Chateau-Thierry was the extensive winning of the Gardner-Serpollet steam machines, which had not been prominent for some time.

At Gaillon, Baras, with a Darracq, and Rigolly, with a Gobron-Brillié, surmounted the 11 per cent. grade at a speed of 77.12 miles an hour. The Darracq showed first in a couple of other classes, and again the Gardner-Serpollet figured as a winner among the "tourists."

The climbing ability of the motor car is still unmeasured, and how long it will be before an impossible task is provided for the up-to-date vehicle is a question not easily answered. Pike's Peak is a job that looms up for the coming summer, and nothing more trying for racing speed has yet been suggested. At least one motor car, an early steamer, has to its credit a fairly successful ascent of the fourteen miles of decidedly bad going, miscalled "the carriage road," which extends from Manitou, at the base of the mountain, to the double-walled signal station on its bleak summit. The troubles experienced and the time taken on this former occasion, however, would have to be vastly improved upon before anything that the public would consider a race could be conducted.

Having been built many years ago, and having been traveled chiefly by pack and saddle animals, and other land craft innocent of wheels, the road is winding, rocky and rough in surface, and too well provided with exceedingly dangerous turns. But now that there are other kinds of motor vehicles than the tiny locomotives of the rack railway, capable of making the climb, perhaps the motorists and road builders of Colorado will do away with these objections. Then the famous slogan of the pioneer, "Pike's Peak or Bust," may be as fittingly placarded on the sides of modern motor cars, as it was on the now all but vanished prairie schooner.

Promoter Wahlgreen writes that in connection with the August mountain climb there will be a long distance race from Denver to Colorado Springs. In the first fifty miles to Palmer Lake the 2,500-foot rise will have to be overcome. From Palmer Lake to the Springs the visitors will be given a treat in coasting over the splendid road and through the unsurpassed natural scenery.

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WEBB JAY IN THE 15-HORSEPOWER WHITE STEAMER THAT PERFORMED AMAZINGLY

Here in the East the success of the first annual "Climb to the Clouds" was of such a pronounced sort that even now plans are being prepared for the second event in the White Mountains. The committee in charge of the C. J. Glidden touring trophy, consisting of Messrs. Whipple, Morris, Temple, Vanderbilt, and Post, has included in the 1000-mile run a two-days' jaunt in the White Mountains during the dates of the climb. This tour will start from New York, July 11, and will be considered as the 1905 run of the American Automobile Association. Two weeks will be utilized, and the run each day will average less than a century. There will be point scoring, and the owner of a car must be its driver or a passenger in it.

Whether the N. A. A. M. will promote an endurance tour this year is a question that has not yet been acted upon, though the impression prevails that it is no longer necessary for the makers themselves to organize and conduct a cavalcade of motor cars across the country. Unquestionably something of the sort is desired by a large number of motorists who desire to vacationize in this manner and in company with their fellow drivers, and the Glidden tour will answer as the 1905 affair. The worth of these events has been considerable to motoring; perhaps the day is not yet past for their discontinuance. Especially does the newcomer to the lists yearn for this field of competition, often made the harder by weather conditions and over roads an unhidden disgrace to this big republic.

The momentum of roads improvement is gaining force every day, and in the future will bring about the expenditure of millions of dollars, benefiting all classes and conditions. That the work of highway reform has slumbered so long in many states, is a cause for undisguised surprise, and though the motorist may not seek the limelight in this long-needed road-making, he is now a powerful factor in its progress and his added weight to the others engaged in the same laudable undertaking will carry down the balance of the scales and bring about miles of highway to delight all users of the public thoroughfares. These tours of the motorist serve well their purpose.



THE MOTORING SON OF RICHARD CROKER

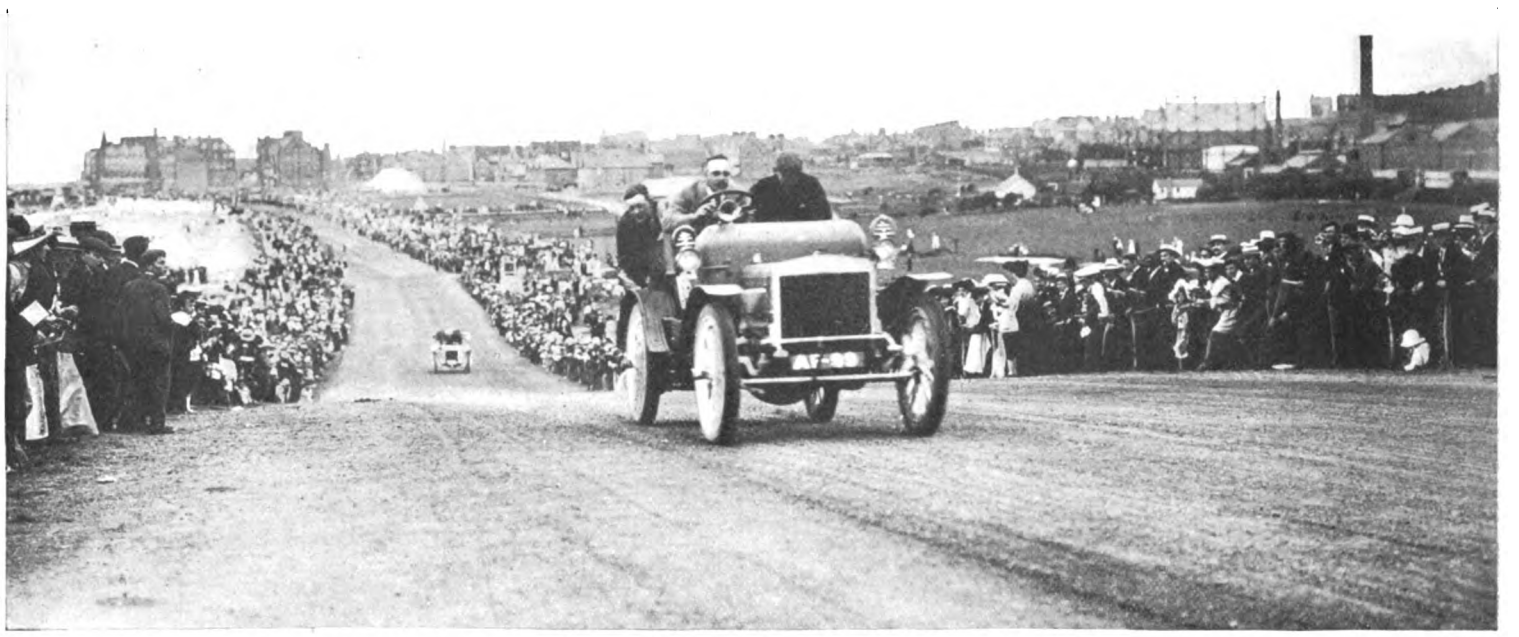
English Roads

That the motor-car is destined to put its mark decisively on the history of English roads is a certainty, writes S. H. Smith in the *Motor Review*. It has restored to many a sleeping roadway a bustle and animation and business that has not been since the last coach did its last journey, and it has already set those responsible thinking how to surely and economically get the better of the great dust nuisance, which has not been created but only brought into a clearer—and cloudier—prominence by the advent of the hard breathing exhaust. In the present day, amongst the English great highways the North Road has the biggest reputation, partly because, being the road to York and Scotland, it has a fascination on the mind, especially because notable



FRANK CROKER CROSSING THE STARTING TAPE IN HIS S. & M. 75-HORSEPOWER SIMPLEX

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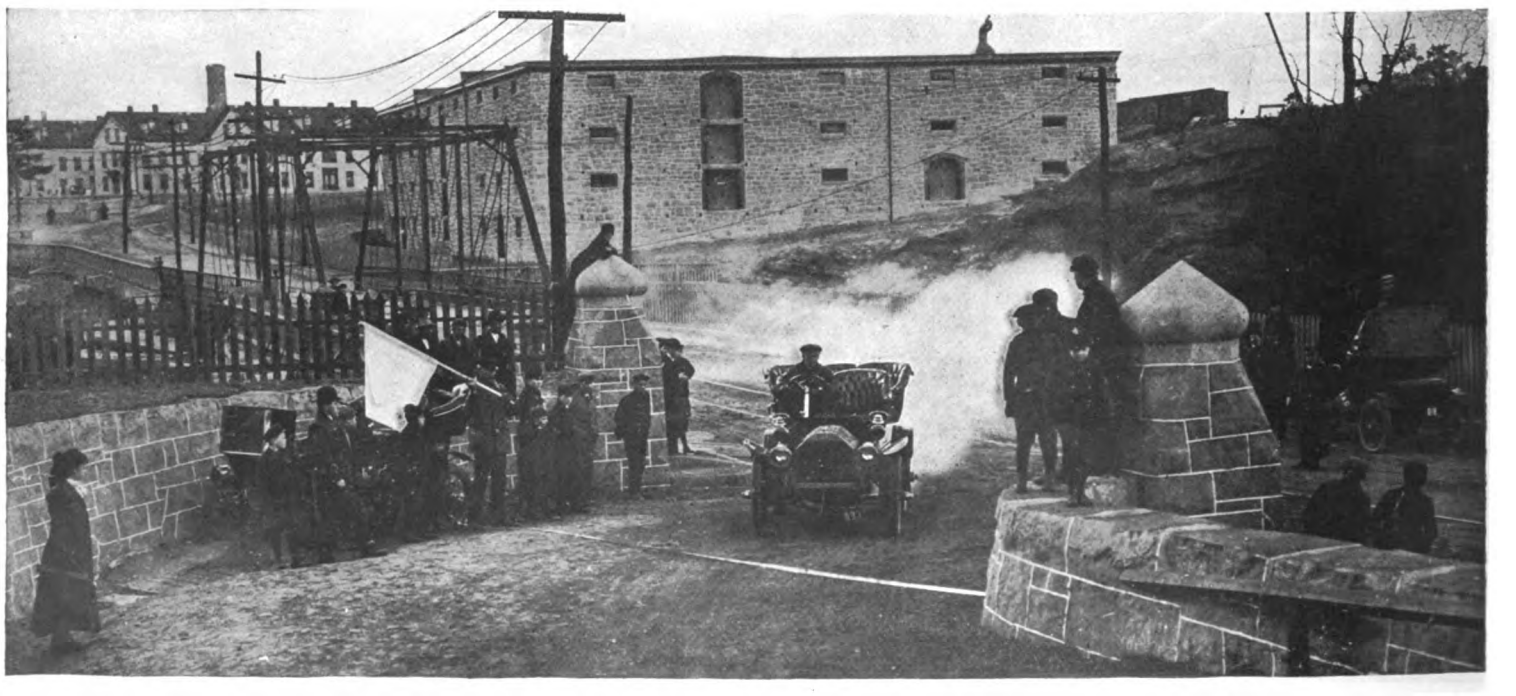
NOTHING PARTICULARLY TRYING WERE THE BEXHILL CONTESTS HELD AT THE FAMOUS ENGLISH RESORT

speed performances have been done over it and its arteries. It is certainly the road for speed, not so much for its surface, for with a few exceptions the real North Road has not the best of surfaces, but it has long level stretches, is broad and open, villages few and small, traffic moderate, all useful points from the speed point of view. For the best surface we would go in the opposite direction. The Portsmouth road undoubtedly offers the best surface, but it is hilly, although even a Hindhead or Butser counts very little to a modern car. The Brighton road is of course very popular, rather too much so now on week-ends, but its surface is deteriorating. The Holyhead road is a grand highway, but for some reason not clear comparatively neglected, and the Bath road



SURMOUNTING CARMEL HILL NEAR MONTEREY IN CALIFORNIA

stands before it in the eyes of motorists. But after all, in spite of their twists and turns, like some streamlet casually meandering through meadows, the true character and delights of the old English roads is not experienced to the full on one of the great highways, brim-full of history and legend though they be, but in the bye-ways and cross-roads with their secluded villages, still, in outward appearance, much what they were two centuries ago; in the stately homes, lordly parks, rolling downs, and wide open commons, and of these the roads of England have to-day, as they have had in the past, an endless variety and supply, a charm always for those who journey over them whether afoot, on cycle, or best of all, on a motor-car. Some day the thousands will so travel.



JOHN L. SNOW AND THE WINNING PEERLESS AT THE STARTING LINE IN THE PROVIDENCE RIVER POINT CLIMB

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BETWEEN ORMOND AND DAYTONA

During the last week of March, 1903, after considerable complicated preliminary effort, a contingent of motorists appeared on the wave-washed roadway of Floridian sand which stretches miles above Ormond and miles below Daytona, with six miles between the two charming places.

Alexander Winton and his "Bullet," H. T. Thomas with a piratical craft from the Oldsmobile factory, and Oscar Hedstrom with an Indian motor-cycle composed the trio of noted performers. These three were shuffled, and shuffled again, and then shuffled once more, with the result that the few spectators saw motor sport enough to encourage the energetic Morgan and his co-workers to begin planning immediately for another year. Over a beach that was decidedly off form, the Winton creation had done its mile in :52 2/5, or within two-fifths of Fournier's Coney Island boulevard record. For competition, the tide-pounded strand left nothing to be desired.

Of the 1904 meet—with its Vanderbilt world's record of :39 for the mile, the clash with Oldfield in which the American "Bullet" won, and a generous amount of other events—the story was told in such a prodigal manner that the Florida race course became famous on both sides of the turbulent Atlantic.

And of the third annual gathering, the latter part of this month, little need be said, and it is superfluous to state that such a motor meet will not be duplicated for many a day. The kings of the sport, both amateur and professional, will try the speed of their foreign and American-built flyers. Herewith are a few names with which to conjure:

Foreign Cars

Mercedes, 90 h. p.—W. K. Vanderbilt, Jr., owner and driver.
Mercedes, 90 h. p.—E. R. Thomas owner, Edwin Hawley driver.
Mercedes, 90 h. p.—H. L. Bowden, owner and driver.
Mercedes, 90 h. p.—S. B. Stevens, owner and driver.
Mercedes, 90 h. p.—B. M. Shanley, Jr., owner and driver.
Mercedes, 90 h. p.—James L. Breese, owner and driver.
Mercedes, 60 h. p.—James L. Barry, owner and driver.
Renault, 90 h. p.—W. Gould Brokaw, owner and driver.
Fiat, 90 h. p.—A. G. Vanderbilt, owner; Paul Sartori, driver.
Napier, 90 h. p.—A. MacDonnell.
De Dietrich, 90 h. p.—C. F. Thomas, owner and driver.
Hotchkiss, 90 h. p.—Henry Fournier.
Pipe, 90 h. p.—J. S. Heller.
Darracq, 80 h. p.—F. A. La Roche.

American Cars

Peerless, 60 h. p.—Barney Oldfield.
Ford, 40 h. p.—Frank Kulick.
Winton, 80 h. p.—Earl Kiser.
Pope-Toledo, 90 h. p.—A. C. Webb.
White, 15 h. p.—Webb Jay.
Columbia, 40 h. p.—E. C. Bald.
Thomas Flyer, 40 h. p.—C. S. Henshaw.
Thomas Flyer, 40 h. p.—F. J. Titus.
Peerless, 24 h. p.—A. E. Morrison.
Franklin, 20 h p.—W. F. Winchester.
S. & M. Simplex, 75 h. p.—Frank Croker, owner and driver.
Locomobile, 90 h. p.—Dr. Harold E. Thomas, owner and driver.
Christie, 100 h p.—Walter Christie, owner and driver.
White, 60 h. p.—Rollin White, owner and driver.



RIVER ROAD BETWEEN LOVELY ORMOND AND PICTURESQUE DAYTONA

After Ormond - Daytona will come the motor-boat week at Palm Beach, and then will follow the expedition to Cuba, where both land and water motoring will be combined. February 9 will be the opening date of the Cuban meet the feature of which will be a 100-mile race on the San Christobal road, which connects Havana and San Cristobal. The course is fifty miles long and thirty feet wide, is smooth as asphalt, and makes possible a speed of seventy-five miles an hour. The cars will go the fifty miles to the control, and after all cars are in they will be restarted on the return trip in the same order as they entered the control. The Cuban carnival will be under the auspices of the International Automobile Racing Association of Cuba. E. J. Conill, of Havana, is president, and W. J. Morgan, manager.

There is one record at which the high-powered machines will drive, and this is the Baras kilometre of :21 2/5, a speed of 104.5 miles an hour. Below will be found the record slate that will call for alteration:

Heavyweight (Over 1,432 lbs.) Gasoline.

1 kil., :21⅗, Baras, Darracq, Ostend.....Nov. 13, 1904
1 kil., :26⅗, Basle, Mercedes, Ormond-Daytona.....Jan. 30, 1904
1 mile, :39, Vanderbilt, Jr., Mercedes, Ormond-Daytona...Jan. 27, 1904
1 mile, :46, Augieres, Mors, Dourdan.....Nov. 17, 1902
5 miles, 3:31⅗, Vanderbilt, Jr., Mercedes, Ormond-Daytona.Jan. 29, 1904
10 miles, 6:50, Vanderbilt, Jr., Mercedes, Ormond-Daytona.Jan. 29, 1904
15 miles, 10:18, Bowden, Mercedes, Ormond-Daytona.....Jan. 30, 1904
20 miles, 17:02, Vanderbilt, Jr., Mercedes, Ormond-Daytona.Jan. 30, 1904
30 miles, 24:11, Vanderbilt, Jr., Mercedes, Ormond-Daytona.Jan. 30, 1904
40 miles, 33:52⅗, Vanderbilt, Jr., Mercedes, Ormond-Daytona.Jan. 30, 1904
50 miles, 40:49⅕, Vanderbilt, Jr., Mercedes, Ormond-Dayton, Jan. 30, 1904

Middleweight (881 to 1,432 lbs.) Gasoline.

1 kil., :25⅕, Hemery, Darracq, Ostend.....Nov. 8, 1904
1 kil., :29⅗, Schmidt, Packard, Ormond-Daytona.....Jan. 3, 1904
1 mile, :46⅗, Schmidt, Packard, Ormond-Daytona.....Jan. 3, 1904
1 mile, :51⅗, Hemery, Darracq, Ostend.....Nov. 12, 1904
5 miles, 4:21⅗, Schmidt, Packard, Ormond-Daytona.....Jan. 2, 1904
Darracq, 80 h. p.—Edward M. Steck, owner and driver.

(Lightweight (551 to 881 lbs.) Gasoline.

1 kil., :32⅗, Edmond, Darracq, Ostend.....July 20, 1904
1 kil., :35⅕, Nestman, Stevens-Duryea, Ormond-Daytona..Dec. 31, 1904
1 mile, :57⅕, Nestman, Stevens-Duryea, Ormond-Daytona..Dec. 31, 1904
1 mile, 1:01⅘, Edmond, Darracq, Ostend.....July 18, 1904
5 miles, 4:58⅗, Nestman, Stevens-Duryea, Ormond-Daytona.Dec. 31, 1904

Steam Vehicles—All Weights.

1 kil., :27⅗, LeBlon, Gardner-Serpollet, Dourdan.....Nov. 5, 1903
1 kil., :34⅗, Ross, Stanley, Ormond-Daytona.....Feb. 1, 1904
1 mile, :55⅗, Ross, Stanley, Ormond-Daytona.....Feb. 1, 1904
5 miles, 7:53⅘, Ross, Stanley, Ormond-Daytona.....Jan. 30, 1904

Electric Vehicles—All Weights.

1 kil., :36⅗, Baker, Baker, Staten Island.....May 31, 1902
1 mile, 1:00⅗, Hastings, Baker, Ormond-Daytona.....Jan. 31, 1904

Touring Cars—Standing Start.

1 kil., :49⅗, Gachet, Boyer, Ostend.....July 20, 1904
1 mile, 2:04⅗, Gachet, Boyer, Ostend.....July 20, 1904

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MOTOR FASHIONS FOR THE FLORIDA MEET

By Grace Margaret Gould

Surely there is no accounting for the caprices of the motor girl. Observe her, for instance, right now. She is wrapping herself in squirrel skins, and for variety's sake is either masquerading as a civet cat or an Abyssiania monkey, and one would certainly think from the looks of her that her thoughts were centered on hand-warmers, foot-muffs, and furry comfortable hoods.

But no indeed. Instead, her thoughts are flitting southward to the land of flowers. She is planning for the great Florida motoring meet, and is actually setting the fad for summer motor fashions while the snow and the thermometer are alike descending in New York.

To know what the fashionable motor girl is buying to wear at the Ormond-Daytona races is really to hear the first instalment of the interesting story of the motor modes for the spring and summer of 1905. The motor girl as she will appear in Florida toward the end of January, when the races are on, will be a very charmingly costumed young person. She will leave all her heavy, dark-fur motor togs up North where she needs them, and will array herself so that she is in harmony with the tropical glow and warmth of the sunny South.



NEW-STYLE MOTOR-HOOD OF SILK RUBBER



Courtesy of Scandinavian Fur Co.

BROWN-SUEDE COAT WITH JEWELLED BUTTONS

Delicate colors are to be a fad with the motor girl at the Florida races, and, impracticable as it may seem, white and the perishable shades of fawn, thread, and burnt bread are to be fashion leaders in motor garments.

Motor coats that are being made to order purposely for the annual Florida motor tournament actually belie their names. The unitiated easily might mistake any one of them for a theatre or opera wrap.

Here is a description of one and you can judge for yourself. It is a long, full, graceful garment, made of burnt bread color Rajah silk, the new raw silk of rough weave. The garment is made with a deep yoke back and front, the shape of which is outlined with a piping of amethyst velvet. From this yoke, the silk falls to within an inch or so of the bottom of the dress skirt, and two box plaits, both in the front and in the back, give a touch of originality to the garment. The full sleeves are also box-plaited and are made with undersleeves of amethyst silk, which are gathered into the wrist like the conventional wind cuff. The coat is double-breasted, and down the front are two rows of buttons made of amethyst quartz. Surely this coat would not look out of place in a theatre box.

White silk rubber is another material that the motor girl favors in planning her Florida wardrobe. She is sure to pack away in her trunk, before starting southward, at least one costume of white silk rubber that, if she does not wear it at the beach races, she certainly will appear in a day or so later at the motor boat regatta at Palm Beach. These new, all white, silk rubber costumes are made with a short, round skirt, and either a jaunty box coat or a tight-fitting garment with a single-breasted vest. White silk rubber long coats also are favored. She likes white suede, too, and many of the white suede long coats boast of the most exquisite of satin linings.

White suede toques that fit the head snugly are among the new dress accessories of the motor girl, and one of her latest little fads is to repeat in her suede toque the same color note that predominates in the lining of her coat. A white suede coat, which is considered the smartest thing out, is lined with topaz satin, and topaz-yellow velvet is used for the deep-strap cuffs and the mannish turnover collar. The toque to be worn with this coat is made of white suede laid in graduated folds and trimmed at one side with a smart looking wheel rosette of topaz velvet, having a genuine topaz as a button in the centre. Topazes framed in old-fashioned gold settings are used for the buttons which trim the front of the coat and the strap cuffs.

White gauntlets, white spats, and a white chiffon veil are the other accessories that complete this costume, and the very fashionable motor girl who wears this coat even goes so far as to have her long motor hat pin made of gold set with topazes, and the case and strap for her field glasses made of white leather.

Veils will be a conspicuous feature of the motor dress parade at the Ormond-Daytona races. Even though the coat itself is of some subdued shade, like russet brown or gray, the veil may vie with the rainbow in its brilliancy of color. Veils shading from deep claret color to faint rose leaf pink are among the novelties, as also is the sea-green veil that fades into a shimmer of silver. These, of course, are hat veils, and the face veil worn with them is in a plain color. A white face veil is most effective with the green-and-silver hat veil, and something distinctly novel, in the way of a hat pin to fasten this unusually lovely veil, is an extremely long safety pin of silver. The top just broad enough to be used as a foundation for two tiny racing machines formed of bits of crystal and tiny moonstones.

It is an interesting fact to note that, since the motor girl has gone in for such extravagant buttons on her motor coats, the maker of the garment sews to the lining of each coat a little suede bag containing a half-dozen or more duplicate buttons, which makes the coat with a missing button an impossibility.



Courtesy of Saks & Co,

SQUIRREL-FUR AUTOMOBILE COAT

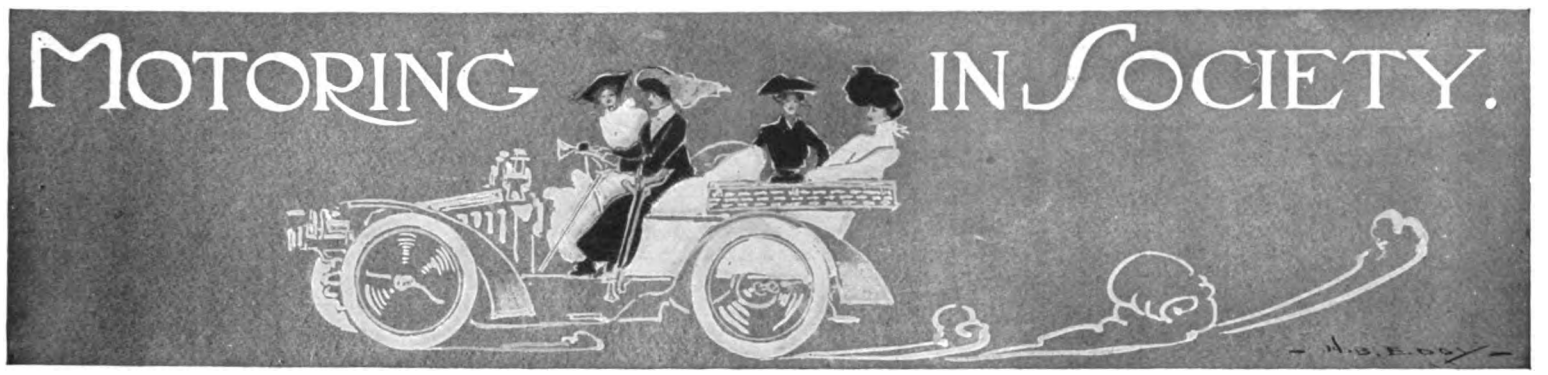


MOTOR HAT WITH ADJUSTABLE SILK CURTAIN

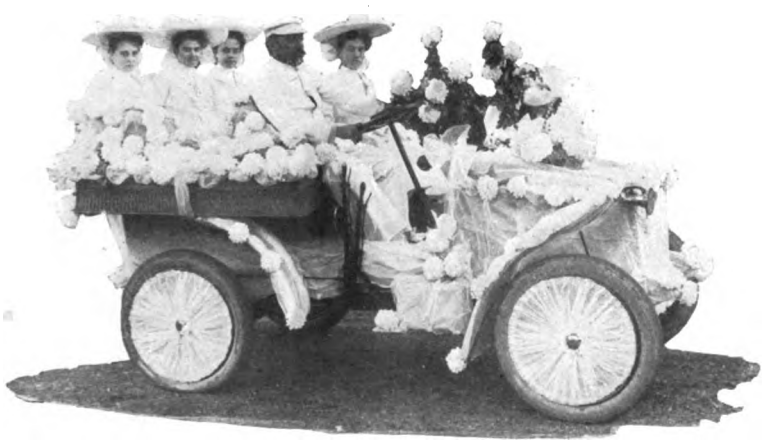
Of course, the Florida motor girl will not appear always in perishable coats and costumes. She will fit the costume to the weather, just as she always does to successfully up North. Long motor coats in redingote shape are making purposely for the Ormond-Daytona tournament, and are of that very practical fabric, shower-proof mohair cloth. Then there are the ulsters of silk rubber which come in changeable shades of blue, brown, red, and gray, as well as of white.

And to match these motor coats, as well as to match others of kind and suede, come the most convenient of motor pillows. The pillow itself is of the softest down, covered with a dark shade of silk, and slips into a fine leather case, with handle and pockets.

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So important a feature of fashionable life in America have the annual races on the Florida seashore become that all the principal hostesses of New York society are endeavoring to crowd their chief entertainments of the winter into the first two or three weeks of January, so as to get them over before the exodus to the South for Ormond-Daytona and Palm Beach begins. Indeed, the Ormond-Daytona races have become quite as much of an established institution as the Cowes and Ascot weeks are in England, and the Trouville-Deauville week in France. It is playing havoc with the New York season, for it cuts it short, long before the advent of Lent, which this Spring falls unusually late. When people find themselves down in Florida for the motor land and water races, amidst the sunshine and tropical verdure, they do not feel inclined to hasten again North to confront snow, ice and the frightful weather which as a general rule prevails in these latitudes in February and March. Only the most pressing necessity will bring people back to New York before the winter has ended, once they have been drawn down there by the motor races. While some will linger at Palm Beach, and the various fashionable settlements of our American Riviera, there are others who will proceed to Aikin, while others have arranged to go on to Havana to witness the great aquatic carnival which is to take place there in February in conjunction with motor races on land



R. MORLEY HARISON, WINNER OF AN AUGUSTA, GA., CARNIVAL

and over water. In fact, Havana holds out so many attractions in connection with this festival that the place will be crowded with Americans. Numerous parties have already been organized for the trip, and hotel accommodation in the Cuban capital is at a premium.

* * * *

Mrs. Vanderbilt's great ball for her daughter Gladys, who has made her début this season; Mrs. Astor's ball, that of her daughter-in-law, Mrs. John Jacob Astor, and the dances of Mrs. Whitelaw Reid, Mrs. Ogden Mills, Mrs. Rhinelander Stewart, Mrs. Stuyvesant Fish and of J. Henry Smith, will all have taken place before the time comes to leave for the South toward the latter part of January, and among those who have already arranged to go are the William K. Vanderbilts, Jr., the Seward Webbs, the Breeses, the J. M. Waterburys, the Oliver Iselins, the Pembroke Jones', the Robert Goelets, the Frederick Vanderbilts, and, of course, Colonel Jack Astor. The latter never fails to turn up in Florida in the early part of each year, and manifests the utmost enthusiasm in all sports and pastimes of the winter colonies from motoring and boating to cake walks.

The Duke and Duchess of Manchester, the Comte de Gontaut Biron, Lord and Lady Maitland, Sir Edward and Lady Colebrooke, the Barons Alphonse and Louis Rothschild, besides a number of other foreigners, who have announced their intention of coming over from Europe this month, will give to the Ormond-Daytona meet, and to life down in Florida, a distinctly cosmopolitan flavor. I hear also that conspicuous among the visitors will be the Premier Earl of England and the Grand Seneschal of Ireland, namely the twentieth Earl of Shrewsbury and Talbot, who, after distinguishing himself as a whip, a polo player, a breeder of polo ponies, and as a hansom cab proprietor in London and Paris, is now at the head of one of the principal Anglo-French motor concerns. Lord Shrewsbury is coming over here on business intent; that is to say, he will endeavor to combine social pleasure and trade, just in the same way as the Comte Armand de Gontaut Biron, who, since he has been over here, has managed to become, not only a general favorite in New York society, but also to place orders to the tune of over a million francs for a Paris motor house which he represents. He is a particular favorite of Mrs. Astor, in whose box he is frequently seen at the opera, and through his relationship with the Castellanes and the Leishmans—his brother is married to Miss Leishman, daughter of the American envoy at Constantinople—has many American connections.

* * * *

Among the most notable events of the present season has been the termination of the feud which has for so long divided the house of Vanderbilt, and which has been for several years a source of considerable embarrassment to many people in New York society who were concerned, to avert awkward meetings between the rival factions. On the one side were arrayed the widowed Mrs. Vanderbilt, her eldest daughter, Mrs. Harry Payne Whitney, her younger sons, Alfred and Reginald, with their wives, and her brothers-in-law, the George the Fred and the W. K. Vanderbilts, Sr., while on the other side was Cornelius Vanderbilt whose marriage in defiance of his father's entreaties and commands had brought about the quarrel. In the early stages of the quarrel friendly intercourse with the Cornelius Vanderbilts was regarded by the rival factions as grounds for offence, and the fashionable world was divided into two cliques, sharply defined. Matters were further complicated by the fact that whereas Mrs. Ogden Goelet was the sister and champion of young Mrs. Cornelius Vanderbilt, Mrs. Robert Goelet, sister-in-law of Mrs. Ogden Goelet, all along has been the most intimate friend of Mrs. Cornelius Vanderbilt, Sr. Indeed, Mrs. Robert Goelet's son has for several months past been devoted to Miss Gladys Vanderbilt and is generally regarded as likely to become Mrs. Vanderbilt's son-in-law before the winter is over.

Last Spring, however, brought about the first steps toward a reconciliation. Then, in London, during the summer, Mrs. Vanderbilt and her daughter-in-law found themselves unexpectedly staying at the same hotel, where it was impossible to avoid meeting, and where the children of young Mrs. Neelie Vanderbilt won their way into the hearts of their grandmother. And now all traces of the feud are at an end. One of the first entertainments in connection with the début of Gladys Vanderbilt this winter was a large dinner and theatre party given for her by her brother and sister-in-law, while Mr. and Mrs. Neelie Vanderbilt were conspicuous among the guests at the dance given in December by Mrs. Vanderbilt, Sr., for her youngest daughter.

This dance likewise served as an opportunity for friends and acquaintances of the Vanderbilts to welcome back to New York Reginald of that ilk, who for nearly two years had been an exile, not merely from the city, but also from the State, owing to the efforts of the District Attorney's office to compel him to testify as to the names of his friends and acquaintances, whom he had met at Canfield's gambling house on the occasion of several somewhat rather memorable visits which he paid there three or four years ago. Rather than give any evidence that might cause embarrassment to his friends, Reginald Vanderbilt kept away from New York, thereby enhancing his popularity, not merely among his own particular set, but among sporting men generally.

* * * *

Inasmuch as motors invariably figure among the wedding presents of the well-to-do, and no young couple would feel that they had been properly treated by their relatives and friends unless they had received at least one motor car on the occasion of their marriage, engagements may be regarded as calculated to promote the motor trade and industry. Indeed, the announcements of impending marriages in the newspapers are watched with quite as much interest by agents for the different motor concerns as by match-making parents, and by young men who are on the qui vive for heiresses.

(CONTINUED ON PAGE 112.)



W. C. WILE, A DANBURY (CONN.) FAIR WINNER

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TO MOTOR ACROSS THE ATLANTIC

By Duncan Curry

If nothing goes amiss an American-built and designed motor boat will have the honor of crossing the Atlantic first. For several months there has been an abundance of talk from Paris about an international transatlantic motor boat race from Havre to New York. Our French cousins at first gravely talked about 30 and 40-foot shells, such as are seen in the motor boat races on the Seine, racing across the ocean, and it was stated that supply boats were to be placed at frequent intervals where the boats could take on petrol when their tanks became empty. No boat that could not average 19 miles an hour was to be eligible, and the Deutschland's record might become a thing of the past.

If anyone other than a Frenchman had suggested such a race and advanced such claims, he would have been regarded as a fit candidate for the insane asylum. But our French cousins, after discussing the idea for a month or so finally modified their views in the matter, and it has been decided that the boats must be strongly built and large enough to carry their supply of fuel in their own tanks.

As the race is to be from Havre to New York, it was thought that no American-built boat would be able to take part in the race, but it looks now as if at least one American boat would be a participant.

Before the proposed French race was ever thought of, the Riotte brothers, of Jersey City, who brought out the *Standard,* had planned and designed an ocean-going motor boat in which they proposed making a transatlantic trip. The boat is complete now, and next month she will probably be on her way across the ocean.

The Yankee motor boat which is to invade foreign waters, and which in all probability will represent America in the race, if one is ever held, is called the *Gregory,* and for a long time has mystified the Jersey correspondents of the New York papers, who have persistently referred to her as a Russian torpedo boat.

The *Gregory* is owned by Lewis Nixon, and while she is designed on similar lines to the boats built by the Standard company for the Czar's government, her work will be along far more peaceful lines, and while she could be transformed into a torpedo boat, she will probably confine her attacks to the transatlantic record and leave the Mikado's fleet to her more warlike sisters.

The *Gregory,* which is a twin-screw boat, is fitted with two 150-horsepower Standard gas engines. She is 90 feet over all, 11 feet 3 inches beam, 8 feet deep and draws about 5 feet of water. The boat outside of a small conning tower is of the flush deck type, with a sort of crown or turtle deck forward to throw off the sea. She registers 45 tons gross and 27 tons net, according to the custom house officials. Below deck there is a gasoline engine at the bow and another at the stern, with a series of tanks in between which are said to have a capacity of 5,000 gallons of petrol, or more than sufficient to take her across the Atlantic at a 15-knot gait.

During her trial trips down the bay last month the *Gregory* is said to have made a speed of over 27 miles an hour, but no official figures have as yet been given out.



WINTER MOTOR BOATING IN THE VINCINITY OF NEW YORK BAY IS NOT UNINVITING EVEN IN SNOW-TIME

Mediterranean Cup Race

The following rules have now been issued by the committee, appointed by *Le Matin,* to draw up regulations to govern the Algiers-Toulon race:

(1) All boats must be decked in, but no restriction is placed upon the type, length or power of any boat.

(2) The motors are restricted to those allowed by the Monaco rules.

(3) The speed of the boat in still water must not be less than 12 knots, and this speed must be attained in the trials.

(4) No fuel replenishments will be allowed, except at the regulation controls, under pain of disqualification.

(5) Each boat must carry a crew of five persons, one of whom must be a seaman by profession, and another a mechanician well accustomed to the sea. Both of these particular persons can only be appointed subject to the approval of the committee.

A delegation from the French Marine Motor Association has laid before the secretary of the Monaco race meeting several modifications of the rules which it is hoped will be accepted. A class for racers up to 60 feet is proposed, and it is also hoped that yacht's boats will be admitted if they use fuel with over 88 degrees F. flash-point, so that certain alcohols may be employed which at present are barred.

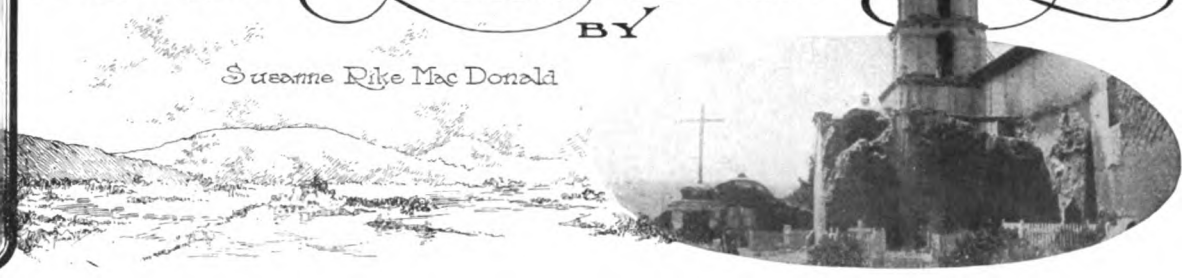
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From the Sierras, to the Sea

BY

Susanne Rike Mac Donald



If, in spite of his many advantages at home, the Californian desires a change of scene during his vacation time, he finds in his own state an infinite variety from which to choose.

Last year we drove up into the mountains near the foothills of which our beautiful city of Redlands is situated, and there, above the clouds, among the pines, we dwelt in perpetual sunshine and drank deep draughts of crisp, cold, pine-scented air.



BESIDE THE CRUMBLING MASONRY OF SAN LUIS REY

Since, then, however, we have come into the possession of a motor car; not a big touring car, but a Stevens-Duryea powerful enough to carry the two of us anywhere we may desire to go.

For this year's outing we chose to go to Oceanside, a little known beach between Los Angeles and San Diego.

As the roads leading thither are scarcely more than trails, very different from Eastern highways—signposts being rarely seen—and as they were unknown to us, we ran such risk of losing our way over the 75 miles between Redlands and Oceanside that we determined to get an early start and allow a long day for possible detours.

If the doubting Easterner could have been with us that July morning, as at six o'clock we whirled out of Redlands, he must have relinquished his last atom of prejudice against our summer climate. The air was like wine, and so cool that I buttoned my heavy cloak close about me.

Our way took us down the long winding grade into the San Timateo canyon. It always is cause for congratulation when we have passed up or down one of these long, steep grades without seeing any sign of life. The Moreno grade winds up through a narrow pass to the summit of the mountain range which divides the two valleys. The road crosses back and forth, up and down, and back and forth, until the top is reached. Then it winds down the other side, back and forth in the same manner, to the floor of the marvellous Moreno valley.

Surrounded on all sides by mountains, here brown and rugged in the foreground, there melting into soft purple in the distance, lies this level valley, like the emptied bed of some great lake. It is no wonder that some years ago men went mad over it and invested in its fertile soil all of their fortunes, only to find that with all of its fatal beauty it lacked the vital element, water. Abandonment and desolation! One could not imagine a drearier picture. Here at four corners are the typical brick buildings of a "boom" town, the foundations of a city, but with shattered windows and sinking walls that tell a tale of disaster. But if only some magician could turn a stream of water through that beautiful valley, what wealth would be there, and how splendidly would the wildest dreams of the boom-period speculators be realized!

Sweeping around a sharp curve we came upon a herd of sheep grazing on the scanty pasture, the only sign of life in that wide region. And there we met our first problem of roads. Stretched out upon the plain before us, like the imprint of a gigantic hand, lay five roads, any one of which might lead us to our first goal, Temecula, or to our undoing.

Our carefully-studied map gave a little help. We were about to choose as the children do, "My mother says I shall take this one," when there was a rattle of wheels and the faint murmur of a voice assuming definiteness in a stream of profanity as the owner of the voice drew nearer. A little, old man, in a little, old wagon, was driving a little, old horse, to which he addressed a constant flow of such frightful oaths that they made my flesh creep.

It evidently was in a spirit of companionship between himself and his beast that he swore, for he uttered even his most terrible oaths in a mild, monotonous tone, which ceased suddenly as he saw our machine, and E—— walking toward him with a sign to halt.

Our inquiry as to direction unloosed another flood of volubility, less profane, and the purport of which was that he



THE EUCALYPTUS-BORDERED ROAD NEAR OCEANSIDE

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MUTELY ELOQUENT OF A DECAYING PAST

was on his way to the post-office, but that if we would proceed to his house, about a mile distant, he would overtake us and show us our way.



A QUESTION OF ROADS

The idea of that forlorn horse overtaking our machine was ludicrous in the extreme, but he plodded off in one direction, while we flew away in another on the high speed.



WATER IS NECESSARY FOR THE NEW STEED AND THE OLD

In a few minutes we came in sight of what we judged to be the old man's house, at some distance from the road; but, thinking we might economize time by learning the right way



ANOTHER MONUMENT TO DAYS GONE BY

to Temecula at once, we turned in at the rickety gate and drove up to the barn.

A Mexican lad who gazed with awe-stricken eyes at the machine was the only human being within call, and he could speak no English. After wasting ten or fifteen minutes in that vain endeavor, we retraced our way and pushed ahead, trusting to luck that we should be on the right road.

A few miles brought us to a grade leading over into the next valley. Words fail to describe the vastness of that landscape and the rugged, desolate beauty of it.

On our way down the opposite side of the grade a large animal ran across our path, and up into the rocks, where he proceeded slowly, looking back with that curiosity which the unusual seems to excite in all wild animals. At first we thought he was a wild-cat, but immediately, with a strange thrill, we realized that he was nothing less than a mountain lion, his long, thin legs, sharp ears and long, slender tail proving his identity. He ran so slowly that E—— might have shot him, but to our intense regret our only weapon was a small pocket revolver.

That brief excitement over we settled black into our enjoyment of the scene, and our constant wonder as to where we were going, a question that soon answered itself as we came into a little town called Lakeview. Why such a name should be given to so absolutely waterless a hamlet is past finding out—unless the very lack was father to the name.

A pretentious hotel adorns the town of Lakeview, which consists of little else but the general store and a livery stable, and its shirt-sleeved proprietor told us how to find our way, his advice being to follow any trail that would take us around the next range of mountains and there inquire our way again.

The road out of Lakeview took us through heavy sand; across broad grain fields and pasture-lands, where we saw horses, cattle, and pigs in great numbers, but never a human being; and on out into the Perris Valley, where it broadened into a hard, straight highway along which we flew for miles on the high speed.

We lost our way again, but a good-natured German set us right and we swept on through a wonderful country, now of level plains stretching miles and miles away into a purple distance, awaiting only the magic of water to make them rich in fruit and grain; and then up steep grades, through strange, rocky hills, and out into ever new valleys.

And never a passing team along the way, never a man in sight! House after house we approached, many of them well-built and surrounded by trees and shrubs—here at last we should see life, faces peeping at us from the windows—only to find windows broken, doors swinging on rusty hinges and the blight of abandonment over all.

At last even these remnants of life ceased to come into view and we began to ascend a narrow but good road up a wild and picturesque canyon. Coasting down the other side we passed great pasture lands and came to a little town nestled among the trees. This proved to be Murrietta, instead of, as we had hoped, Temecula. But Temecula was only six miles away, a distance which the car soon covered.

We had been told to avoid the Indian Reservation, Pala, and to go through the Rainbow Canyon, but here again we missed our way and before we saw any one to set us right we were fifteen miles from Temecula and well into the Pala Pass. We decided to go ahead, nevertheless, but not until after we had cooled our hot machine and refreshed ourselves with a little food; so we pulled up under a huge live-oak and for an hour enjoyed its shade. Car and passengers both were the better for the rest. All of the power of the machine was needed for the next ten miles, while the driver dared not relax his vigilance a second, so narrow, rugged, and tortuous was the road. We were again so fortunate as not to pass any teams on the way, though we went by several Indian dwellings, evidently built by the government.

The half-dressed and unkempt men, women, and children who scurried out to behold the unwonted spectacle of a motor car on their mountain road might have made a timid person long for the crowded streets of a city, but only the dogs ventured to address us. It was a source of wonder to us how they could live on such barren land, their dwellings being crowded on little, bare spaces between great rocks: but we learned afterward that the greater part of the reservation is a fertile and profitable ranch, and that we were on a spur of Smith Mountain, the wildest and most desolate part of that region.

If ascending the grade was difficult, the descent into Pala was infinitely more so, the road curving sharply every few yards around huge boulders that appeared ready to drop upon us at the slightest jar.

However, we were thankful for the wrong turn that had

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A BAD PLACE TO STOP IN "EARTHQUAKE WEATHER"

taken us that way, for it is not often one's good fortune to behold such wild beauty, and while the road required careful driving, at no time did we find it dangerous.



TROUBLE COMES WHERE THE SAND IS DEEP

To our left, a mountain came in sight on whose sides was a huge, pink blotch. We learned afterward that this was an old lithia bed, and that a short distance away were found the



A REST IN THE SHADE

beautiful new gems, the kunzites. In those gorges have been found tourmalines, beryls, aquamarines, and many other semi-precious stones. Riding through them in a motor car one is



A GOOD PLACE WHEN LUNCH TIME COMES

so struck by their wildness and desolation that it seems likely that even yet they have not begun to give up their secrets to curious man.

Indeed, such millions of miles away from civilization did we feel ourselves to be, it was with a shock of surprise we caught the flutter of the Red, White, and Blue in the distance.

We soon found ourselves in the center of Pala, in front of the "Store," an unprepossessing frame building from whose flagstaff Old Glory gave the only bit of color to the gray landscape.

Underneath the shade of the solitary tree at Pala, were the men, horses, and dogs of a prospecting party. Of them we asked our way and were told that between us and our next goal, Bonsal, lay 15 miles of sand, and that earlier that very day a motor car had turned back to Temecula after a vain effort to pass through the sand. This information was not encouraging, but it failed to diminish our faith in our good machine. It was with the thrill of a new adventure that we whirled through the apparently uninhabited rows of houses and proceeded down the narrow, winding road to the bed of the San Luis Rey River. The road was so hard and smooth for several miles we began to think the story about sand was a myth, but when we came out upon the river bottom we found sand enough to prove the verity of the tale.

At Bonsal we came upon hard roads again and swept on to Oceanside on the high speed, to the last but by no means the least grade of the trip, at whose summit we came out upon a broad mesa and caught a first glimpse of the sparkling Pacific.

A ride full of interest was the short one through the beautiful valley to El San Luis Rey Mission, where good Father O'Keith delights to show the restorations carried out by the Franciscans themselves, of adobe, just as the original structure was built.

Another trip full of charm was to the vast Santa Marguerita ranch, a single principality of 260,000 acres, eight times as large as the District of Columbia, and over which only the privileged dare hunt, and where we were tantalized by the sight of quail as thick as chickens in a poultry yard and almost as tame. But the quail season was not yet on and we were forced to content ourselves with doves.

On the return trip to Redlands, we were to retrace our way as far as Bonsal and there turn aside over the Red Mountain road to Rainbow Canyon, thence to Temecula, and from there on by the way we had come.

My husband stopped to inquire his way of a man who assured him we should encounter no sand worth mentioning, but we had not gone two miles on the new road until we came to the bed of the river and there lay sand before us, glistening white for half a mile. E——tried to rush the car through, but in a moment the wheels were whirling around and around as futilely as though in water and the poor engine became so hot that there was nothing left to do but give it a chance to cool and then try, try again. We spread gunnysacks under the wheels, which were buried far over the tires, but our endeavors attained such feeble results that in a short time we all were hot and tired—car, driver, and passenger.

E—— left me with the machine and a revolver while he trudged back for aid. His tramp of two miles through the hot sun to the man who had been so hopeful about the sand gave him ample time for reflection, and while not of a suspicious nature he began to suspect that there was method in the rancher's encouragement, and that he even then might be awaiting his return with the keen enjoyment of a man who has things in his own power. In the meantime, I was suffering agonies of fear, not knowing precisely of what I was afraid—stray Indians from the reservation, Mexicans from the vast ranches through which we were passing, the huge Colt's revolver which I bravely held but did not know how to use, or the very silence and loneliness that brooded over the scene. I walked back to the little rise which lay between us and the solid road we had traversed, and from its summit I could see the little barn two miles away, whence must come our aid. Ere long, through the still, clear air, I caught the sound of voices and could see the horses and big wagon, mere specks at first, but growing cheeringly larger.

Unlike most of the horses in that region these good beasts were not afraid of the machine and pulled us out of our trouble in a few minutes. At last we were on a firm foundation. "How much do I owe you?" inquired E——. "Well," replied the rancher, "I never done this sort of thing but once before, and that fellow he gave me a dollar. Would you think a dollar was too much?" I wondered why E—— seemed apologetic. He told me later how suspicious he had been.

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JACOB'S LADDER IN THE OLD BAY STATE

By Cortlandt F. Bishop

The western part of Massachusetts contains the valleys of the Housatonic and Connecticut rivers. These run south in parallel lines and are separated by lofty hills, which support a small and scattered population. The valley of the Connecticut is in general some 700 feet below the level of the valley of the Housatonic, and the former river has several tributaries of considerable length which flow into it from the west. The mountains which form the watershed between the Connecticut and the Housatonic are known as the Hoosacs, though they are frequently in the general designation of the Berkshire Hills. The Hoosacs cover an area nearly forty miles in width, and then reach their culminating point some thirty-five miles west of the Connecticut River. They are drained to the east by the Deerfield and Westfield rivers. The former of these streams has worn a deep gorge, utilized to bring the Fitchburg railway up to the point where it pierces the watershed by the longest railway tunnel in America. The Westfield River is formed by the union of a number of branches, each one of which has made a valley for itself, and it is by following one of these forks up to the watershed that the Boston & Albany Railroad has found a passage into the Housatonic Valley without the necessity of a tunnel, long and costly.



A CLIMB OF JACOB'S LADDER BRINGS SCENIC RECOMPENSE

For the last decade the Commonwealth of Massachusetts has been expending each year a half million dollars upon the construction of state roads, which at this time reach an aggregate of 550 miles. The commission in charge of the work has been following out certain lines of communication, and is slowly filling up the gaps, so that within a few years it will be possible to cross the state from east to west by two separate lines of macadamized highway. The northern of these through routes follows the valley of the Deerfield River, but the precipitous nature of the mountain slopes above the Hoosac tunnel is an almost unsurmountable difficulty. Its passage by a roadway of reasonable gradient will necessitate the expenditure of a vast sum of money. Meanwhile the stage route of ante tunnel days is ready for daring automobilists who care for a gradient of 20 per cent. for four miles.

This article has particular reference to the splendid state highway which winds along the right bank of the Westfield River, and, with the exception of a few small gaps, is now completed to a point thirty-three miles west of Springfield, Mass. As far as it goes this road winds through forests and along the banks of rushing streams, and, although for most of the way the valley is enclosed by mountain walls, yet there are no heavy grades, and the whole trip forms, perhaps, the most attractive motor trip in New England, which section offers much to travelers.

But at the end of this strip of state road difficulties begin.



WHEN "SAWDUST HOLE" IS AT ITS WORST



WHEN MOTORISTS BECOME TEMPORARY ROAD-MAKERS

The watershed must be crossed; a rise of a thousand feet must be accomplished. The railroad has solved this problem, by a vast amount of rock cutting and many bridges, thereby monopolizing the gorge of the Westfield River. The highway has been compelled to make a detour, and just beyond the point where the state road ceases there is a choice of routes. One leads to the right to the northwest and later rejoins the railway at a little town called North Becket. It is probable that this will be the route eventually adopted by the Highway Commission, because, although longer, there are no very heavy grades to be overcome. At present this route is to be avoided because of the alternate

(SEE PAGE 70.)



HOW A BIG PANHARD ONCE MASTERED THE HARD PART

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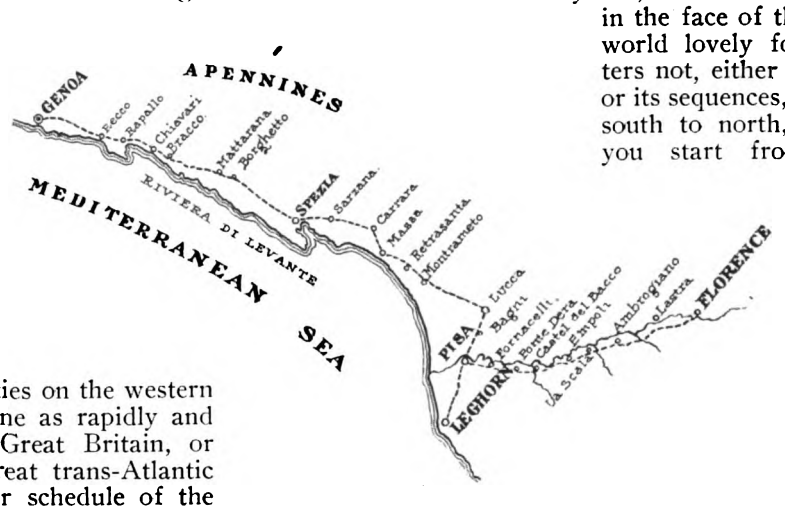


WINTER TOURING IN ITALY

FROM GENOA TO FLORENCE

BY AVANT COURIER

Italy was the inheritor by conquest of the art treasures of the world before the Christian era, and so soon as she passed out of the chaos of the destruction of her Empire, she became the museum of the new era. To her have turned, in recognition of this fact, the footsteps of the æsthetic pilgrims of centuries; and generation after generation have in her found what their souls desired. For centuries "the grand tour" was part of the liberal education of a gentleman; and though it led through France, or Holland, or Germany and Switzerland, its bourne was the chain of cities which girdle the shores of Italy, and especially those which look out upon, or toward, the Mediterranean westward: Genoa, Rome, Leghorn, Florence and Naples.



The tide of travel still runs on the old lines, though reinforced by modern facilities, and drawing its pilgrims from wider areas. Mere commercialism has taken notice of the opportunities nature and conditions have created, and has made these cities on the western borders of the Italian coast line as rapidly and easily available as those of Great Britain, or Northern Europe. All the great trans-Atlantic steamship lines have a regular schedule of the best and most commodious, and swiftest, vessels plying between New York and Genoa or Naples; with the alternative of landing at either of these ports, and re-embarking at the other; and if there needed a temptation to take a motor tour in either direction through the intermediate cities, surely this fact would turn the scale. All the old posting roads are as available to-day as they were when they were the only land arteries, and were blocked with vetturini and diligences, or the more ambitious luxurious private equipages of the high and mighty. Nothing has been lost, the same lovely landscapes, with the sea on one side and the snow-clad Appenines on the other, the same picturesque people, the same fascinating cities, the same soul-stirring stories, as when Columbus and Amerigo Vespucci tramped afoot out of Genoa, and Dante pondered over the social and political troubles of his times. Indeed, the self-same highways over which Hannibal marched his African hosts and many a Cæsar the captives of a conquered world, are in use to-day. The only change is in the increased possibilities and independence which the motor car has brought, and the assurance that, for creature comforts, the traveler will not now be dependent upon the small and uncertain village inn, but can cover, at all times, as much space 'twixt morn and night as will take him from one good hotel to another. Furthermore, the motor car has enfranchised the traveler by road, with an eyes for beauty, from the dilemma of having to pay an exorbitant extra sum for every hour that he pauses on his way, to take advantage of some coign of vantage on the road which opens a vista of unusual attractions; or, if he were a traveler by rail, of having no opportunity to see anything at all betwixt point and point, for railroads mainly follow two lines of oblivion: you are either hemmed in in a valley, following the windings of a river, or you are in a cutting, or tunnel, with a tantalizing knowledge that the hill above your head is the very place from which you ought to be taking in the panorama.

To travel by rail, when the motor car is available, is flying in the face of the Providence which made the world lovely for man's delectation. It matters not, either for the interest in the journey or its sequences, whether it be undertaken from south to north, or north to south; whether you start from Genoa to Leghorn and Florence, and from Florence to Rome, and finish from Rome to Naples, or vice versa, the information given, and pointed out, and the road routes, are the same, and the three divisions will be those to divide the journey, in whichever direction it is taken. But as some choice must, perforce, be made, I will choose to start from Genoa on the first stage of some 150 miles to Florence. Genoa, when approached from the sea, is fairly entitled to the epithet which her sons attach to her of "the superb," for few towns have the advantage of such a sea as the Mediterranean in color, or are set in such a background as the foothills of the Appenine range, or rather ranges, for they lap and overlap each other, and come down to the very edge of the city, and even into its streets; a fact which, combined with the narrowness of many of them, will make it unadvisable to use the motor car until departing, except for some of the many nearby excursions, out and home.

At a distance the appearance of the porticos, columns, pediments, and friezes, statues, and arabesques of its endless number of palaces is very striking. But many of them, on nearer approach, are found to be in narrow alleys; indeed the narrowness of the streets and the extreme height of the houses is a surprising reminder of conditions which we may have thought, never existed before the days of our modern "sky-scrapers"; but cramped as Genoa's palaces are, they will be found splendid within and rich in art treasures, and although it is not my function to write a guide book, they are abundant and good; I might especially instance the palazzo Sorre. in which the enrichment of a single room cost $200,000. Only two other details need I point out, and that only because they may otherwise be overlooked: one is the views from the cupola of the Church of Santa Maria di Carignano. which commands the bay and the route to the western Rivièra, and the other is from the Viletta Negro, which com-



THE WHITE FRIARS OF CERTOSA

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A VIEW OF PISA, WITH ITS LEANING TOWER AND BAPTISTRY

mands the city and the bay, seen from a foreground of orange trees, acacias, myrtles, oleanders, and numerous other fragrant, decorative, and deciduous trees, shrubs, and plants.

The story of the city I must leave to other hands; but a city which was ancient when Peter, and Barnabas, and Paul taught the Christian religion in it, and was destroyed by Asdrubal, the brother of Hannibal, must needs have a rich one.

On leaving Genoa by the old post road we follow the coast through the eastern Rivièra, and in the enjoyment of the first scenes presented between Genoa and Recco the motorist will congratulate himself on having chosen this route, rather than the alternative one inland. The road is carried along the sides of the mountains, whose base is laved by the waves of the Mediterranean Sea. It begins to ascend immediately on leaving the city, and passes, sometimes through villages, one of which, Quinto, claims to have been the birthplace of Columbus; sometimes winding along terraces cut in the rocks, or round promontories overhanging the sea, and it presents constantly-varying, but always beautiful, scenes. At Ronta a gallery is cut through the limestone rock just at a place where the eye commands a very extensive and fine view. At Recco the road is carried across a ridge ending at the little town of Rapallo, spread along the bay's shore, and winding up the eastern side of the bay. Thence it continues along overhanging terraces through masonry-lined galleries until it descends again, by many a rise and fall, over heights covered with arbutus and stone pines, sometimes high above the ocean, into Chiavara in the center of a bay which has local beauties of a singularly charming character—the vine, the olive, the citron, the fig tree, the prickly pear, and the aloe, in impenetrable hedgerows, abound. Chiavara with its blue skies, above a bluer sea, and its white pebbly shore, and its arcaded streets and mosque-like churches, is a great temptation to tarry.

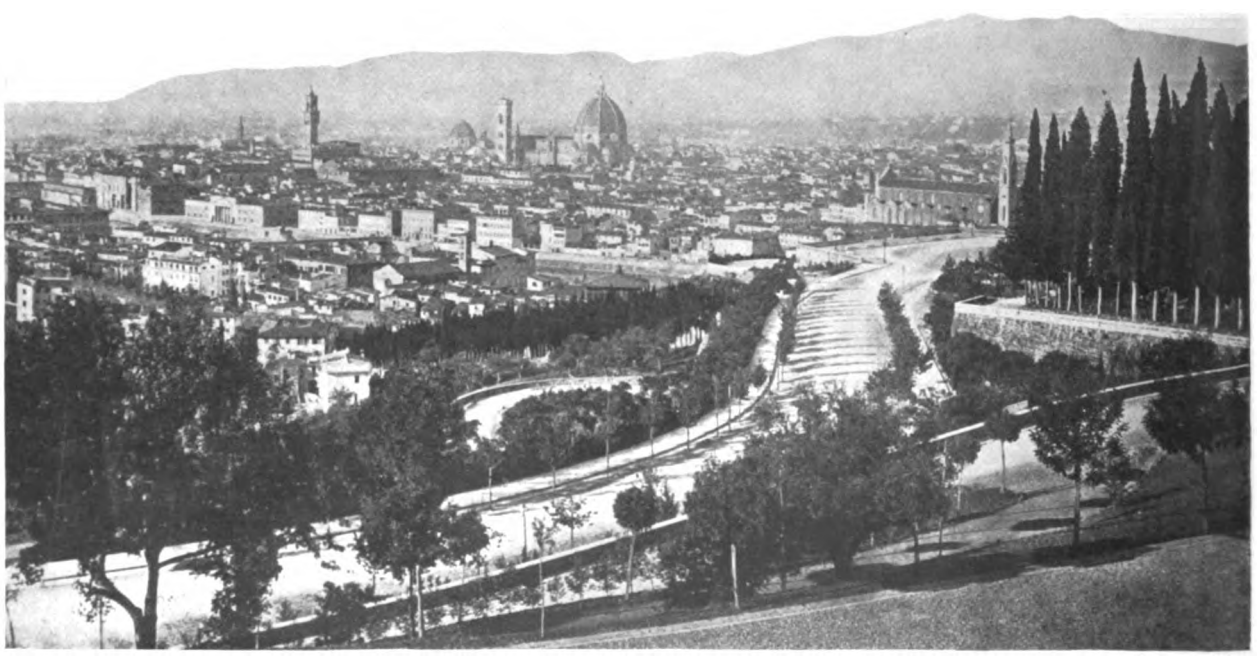
From Chiavara the road winds up from the seashore through the pass of Bracco, up toward the sterile summits of the Appenines. From the top of the pass, in clear weather, the distant island of Corsica, the birthplace of Napoleon Bonaparte, can be seen. From thence the road toward Mattarana exhibits, in the huge mountain peaks and masses thrown about in unimaginable confusion, one of the most dreary districts in this wild chain, and the inhabitants are as unkempt as the scenery.

From Mattarana the road descends through Borghetto into the chestnut, olive, and vine belt, again down the valley of the Vara, and up that of the Recco toward the Gulf of Spezia. For most part of the way the road is shut off from a view of the sea and is flanked by a deep ravine, beyond which are many castellated hills, and in the distance the central chain of the Appenines with snowy summits. Suddenly the flanking road turns, and Spezia and its beautiful bay, bursts into view. The road from Spezia to Sarzana is highly picturesque and wild, the castle crowned and village capped hills of the valley of the Mayra, adding greatly to its character.

The best road from Sarzana to Massa, goes direct, after passing through Lavenza, but few motorists will care to resist the impulse to leave his motor, for a brief space, and hire a lighter vehicle to ride up to the mines of Carrara, which have supplied the sculptors of the world with white marble as long as the art of sculpture, as we understand it, has existed. Carrara is the home, not only of the workers in the various quarries, but of a most Bohemian colony of artists, and the detour is one of the most excusable on a track of many temptations.

The road from Carrara to Massa falls into the main road from Lavenza, where the motor comes again into use, and the scene presented from the securely terraced road, along the mountain side, is one of the most splendid points on the shore of the Eastern Rivièra. At the end of the deep ravine at our feet lies the flat plane of Fiume Frigido, richly wooded, above it the town and castellated hill of Massa, and beyond the dark blue sea. Before entering the town, the Frigido is crossed, over a white marble bridge, as becomes the neighbor of Carrara, and

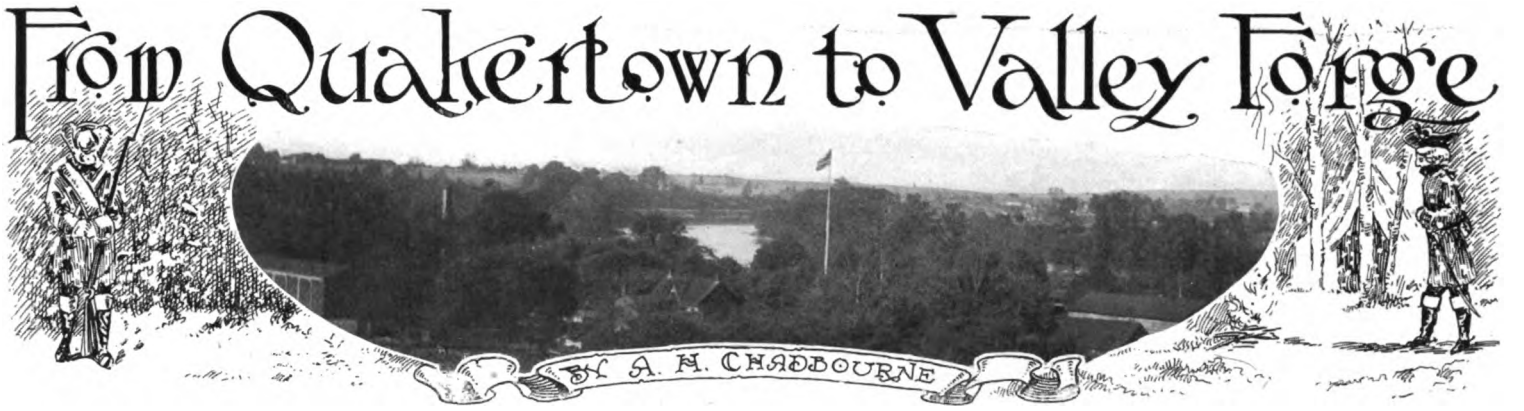
(CONTINUED ON PAGE 78.)



FLORENCE, RICH IN ART TREASURES AND HISTORIC LORE, AND BLESSED WITH A PERFECT CLIMATE

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From Quakertown to Valley Forge



The numerous motor car owners and drivers in and about Philadelphia are more fortunate in some respects than those of other cities. Providence has a way of equalization all her own, and the admixture of good with bad, the bitter with the sweet, which makes life worth living and even joyous may be noticed in every country on the globe.

Whatever cause there may be for all the quibs and jests that are cast at Philadelphia as a city, the fact remains that her suburbs and surrounding country have more to offer the tourist in natural beauty, easy of access, than can be found about any of her sister cities.

Good roads stretch out in nearly every direction, and the lover of nature and out-of-door life can pass many a pleasant hour touring over the country in search of new views and untried paths.

When brown October has waved her magic wand over the woods and hills, and the full beauty of the autumnal coloring is at its best, there is no more picturesque spot to be found than the scene of the immortal George Washington's encampment at Valley Forge.

Less than thirty miles separate this historic spot from the centre of Quakertown, yet it is indeed a far cry from the sumptuous Bellevue-Stratford Hotel on Broad Street to Washington Inn at Valley Forge, whose kitchen served as a bake shop for the half-starved, half-naked heroes of that fearful winter.

The most desirable route to reach this spot is out Broad Street to Spring Garden Street to Fairmount Park; through Fairmount Park to Belmont Avenue, which we follow to the City Line, and turn right from this avenue into Montgomery Pike. Three toll-gates must be passed where tribute is demanded, but as the toll is only ten cents and the pike extends practically all the way to Valley Forge, this ancient form of robbery can be overlooked. The Turnpike Company, however, only operate a few miles of this road, hence the seemingly low toll, and the continuance of the highway, although not under their care, is in excellent condition and macadamized nearly the entire distance.

The famous Lancaster Turnpike, which runs parallel to this on the opposite side of the Pennsylvania Railroad, has toll-gates galore, and their charges are so exorbitant that only the wealthy can afford to ride over it. This pike may be used on the return trip, thus enabling one to make the run to Valley Forge and return without passing twice over the same ground. Just before reaching the second toll-gate on Montgomery Pike are two old buildings, standing almost side by side, each claiming historic interest, but of a vastly different character. The first is the "General Wayne," an old roadhouse or tavern. The ancient signboard swinging from its vine-grown post tells us it was established there in 1704. Its old-fashioned doors and windows and low studded tap-room mark it as an old-timer. Here Washington stopped for rest and refreshment on his way to Gulf Mills, after the battle of Germantown, and later here the gay Lafayette drank to the success of the American cause.

Nearly all the main roads leading from Philadelphia in any direction were stage routes in the early days before the railroads were constructed, and the roadside inns, then a necessity, have survived, and stand in many cases exactly as they



THE FAMOUS OLD GENERAL WAYNE INN ON MONTGOMERY PIKE, ESTABLISHED IN 1704

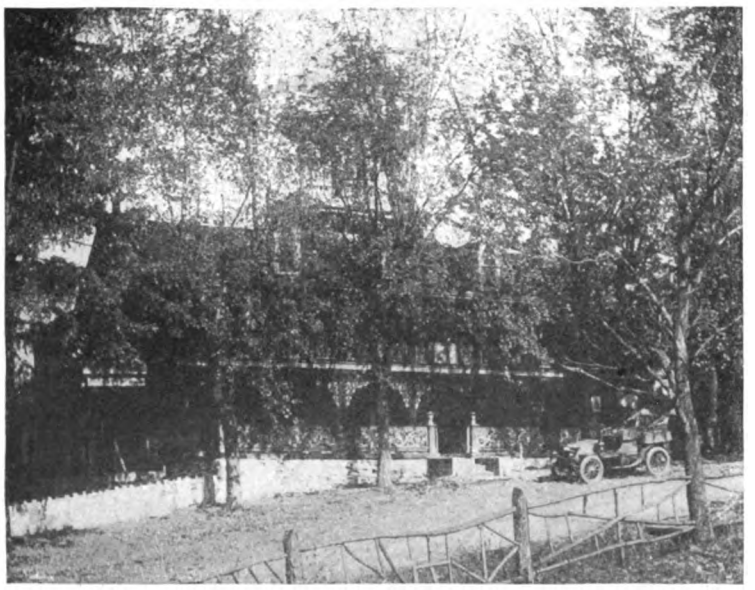
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stood over one hundred years ago when history was warn in the making.

Just beyond the "General Wayne," and so near that the clink of the glasses and laughter of the jolly post boys could have been plainly heard, stands the old Quaker meeting-house, where William Penn himself was wont to go to worship.

The toll-gates along the pike are pleasing at least to the eye, and their very existence adds not a little to the quaintness of the country, especially to strangers who come from sections more advanced in civilization and where toll-gates are only heard of as relics of the by-gone ages.

The road winds through a rolling country, and from Bryn Mawr, through Rosemont, the natural beauties of the landscape have been added to by the numerous handsome residences and country places on either side.



THE OLD WASHINGTON INN AT VALLEY FORGE

As we come to Gulf Mills, a little settlement along a creek, of that awful winter stood guard over the destinies of a nation.

The hills here drop abruptly and the road winds down to the valley. Half way down we catch the first view of Washington's Headquarters, almost hidden by the overhanging trees, with the Schuylkill river showing in the background.

Descending the hill we stop at the old Washington Inn for lunch. The tavern is over a hundred years old, and where the kitchen now stands our army had erected their bake ovens, where such grain as could be procured was converted into bread for the troops.

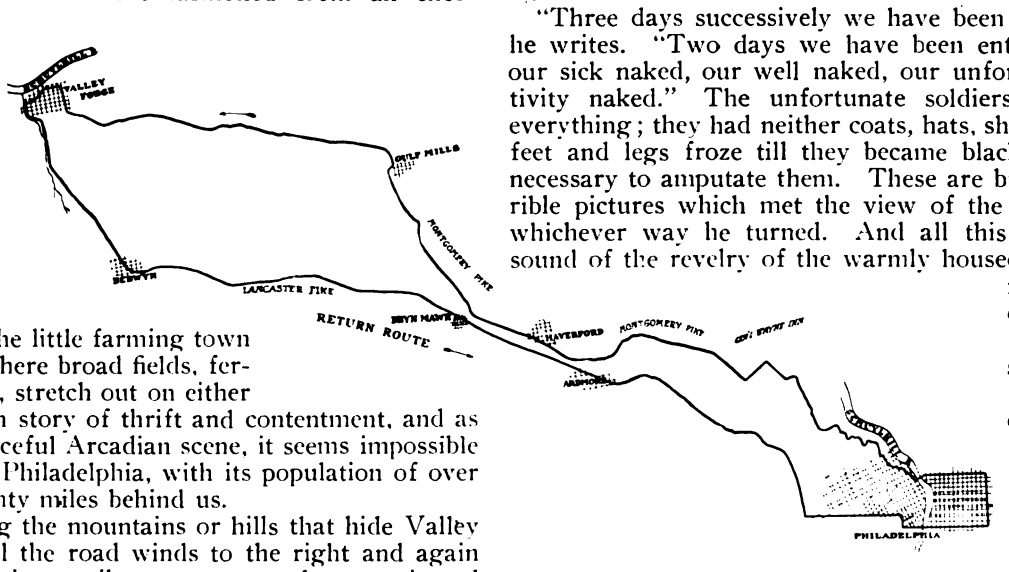
Nearly back of the inn, nestling among the trees near the point as which the Valley Creek joins the Schuylkill, is the ancient pointed-stone house of Miller Isaac Potts, the structure which all America cherishes to-day as the home of Washington for the half year that the



VIEW NEAR GULF MILLS, WHERE WASHINGTON ENCAMPED BEFORE VALLEY FORGE

the road narrows and the hills rise abruptly on either side. At this point the Pennsylvania Society of the Sons of the Revolution have erected a monument fashioned from an enormous boulder in commemoration of the fact that here General Washington encamped for nearly a week before taking up his permanent winter quarters at Valley Forge.

The road becomes more winding and hilly now as we leave Gulf Mills and enter the little farming town of King of Prussia, where broad fields, fertile and well cared for, stretch out on either side and tell their own story of thrift and contentment, and as we gaze upon this peaceful Arcadian scene, it seems impossible that the great city of Philadelphia, with its population of over 1,500,000, is only twenty miles behind us.



Now we are nearing the mountains or hills that hide Valley Forge from view, and the road winds to the right and again to the left, steadily rising until we pass over the summit and through what is now called Valley Forge Park. On these hills were the entrenchments, redoubts and forts, where the heroes army was encamped in that country. In it, he faced the crisis of the winter and spring with about as much to brighten and lighten his life as his men had.

"Three days successively we have been destitute of bread," he writes. "Two days we have been entirely without meat; our sick naked, our well naked, our unfortunate men in captivity naked." The unfortunate soldiers were in want of everything; they had neither coats, hats, shirts, nor shoes; their feet and legs froze till they became black, and it was often necessary to amputate them. These are but a few of the horrible pictures which met the view of the commander-in-chief whichever way he turned. And all this was almost within sound of the revelry of the warmly housed and well-fed British soldiers in Philadelphia.

Isaac Potts, whose stone "mansion" was selected as the Headquarters, was the son of one John Potts, who purchased property there in 1757, and operated a forge on Valley Creek.

This was known as "The Valley Forge," and history tells us that he did a thriving business.

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The house stands in a perfect state of preservation, and appears to-day almost precisely as it did when Washington occupied it. The doors, with their old-fashioned bolts and locks, are the same his hand has moved, and even the window glass and small sash are the same through which he viewed the blinding snow storms that half buried the huts in which his army were huddled for shelter.

For those who are interested in the history of that time a couple of hours can be well spent strolling about the surrounding hills, where lines of earth walls and the remains of what were the various forts can still be seen.

The return run to the Quaker City is for the most part through a suburban district built up along the main line of the Pennsylvania Railroad.

There are a few miles of open country, however, before we reach Devon and the Lancaster Pike, with its numerous toll-gates and the keen-eyed bicycle policeman to bring us back with a rude shock from the peaceful quiet of Valley Forge to the stern reality of the progress of civilization.

Leaving the Washington Inn, we turn to the left, following the road that winds for a half mile along the Valley Creek; crossing this creek by an old wooden covered bridge we swing to the left again and up an easy grade rise for a short distance, where turning once more to the left, we stop to look back for a last view of hills about Valley Forge, with the beautiful summer home of ex-Attorney-General Knox in the foreground.

For the next few miles we follow a well-kept road through a rolling, farming country, which brings us into the Lancaster Turnpike near Devon.

While this entire pike is not patrolled, there is one "Mullen," a "bicycle cop," who has the reputation of being in not less than three places at once, and how many understudies he may have is unknown save to the gentlemen landowners along the pike who employ them. There are miles of beautiful road, with unobstructed view and dwellings for the most part set well back from the road and far apart, but woe betide the hapless tourist who dare exceed ten miles an hour in Radnor Township or who crosses an intersecting street at any speed without blowing the horn.

It is a fact, that men have been arrested and fined for failing to blow the horn when crossing country roads intersecting Lancaster Turnpike, the most expensive and dangerous road for the tourist in Pennsylvania.



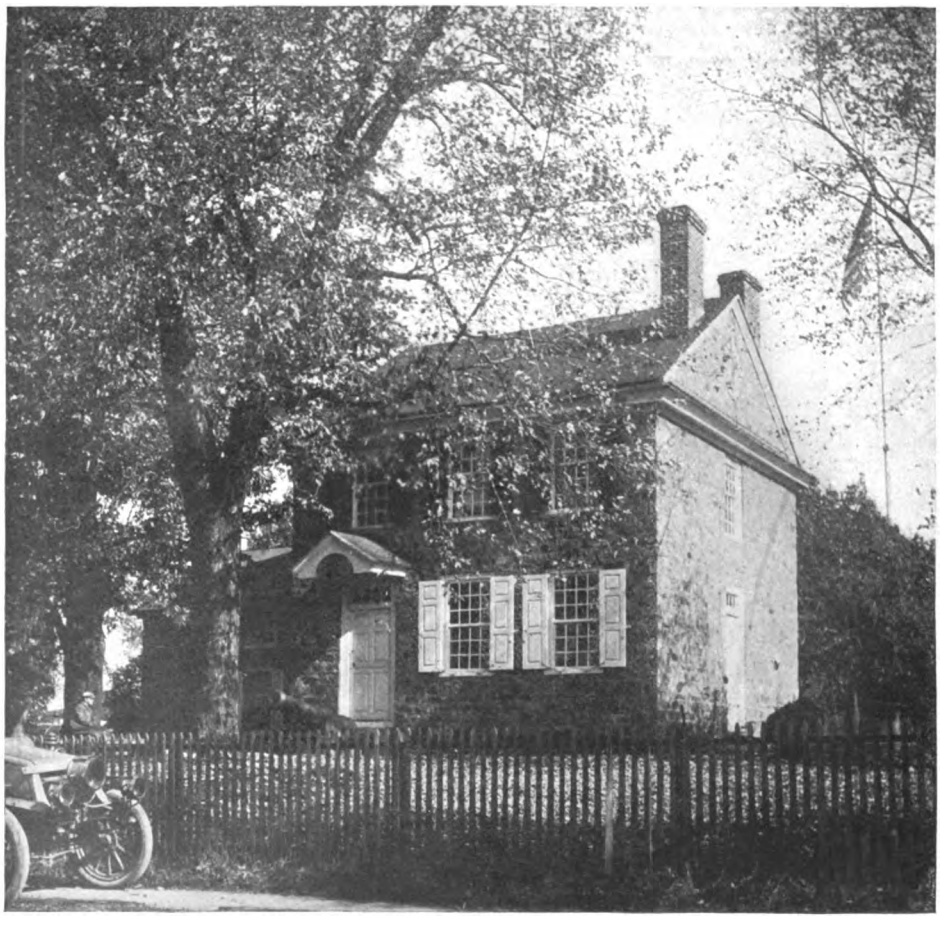
OUR WINTON CLIMBS A HILL ON MONTGOMERY PIKE

But we are in no hurry. The day has been well spent, and keeping within the speed limit, we reach the city long before the early sunset shall warn us to light our rear light lest some gentleman driver returning from the race track may drive his well-matched pair through the tonneau door. Of course, the horse-drawn vehicle first had the use of the highway, but slowly yet surely the impression is gaining ground that motor cars have a place in transportation facilities that deserves recognition. Innovations always require educational periods, motor cars included.

Pennsylvania Toll Roads

In a tour not long since made from Hagerstown, Md., across Pennsylvania, to Trenton, N. J., and Hartford, Conn., F. C. Gilbert refers to one of the toll roads mentioned in Mr. Chadbourne's story. Herewith Mr. Gilbert's experiences:

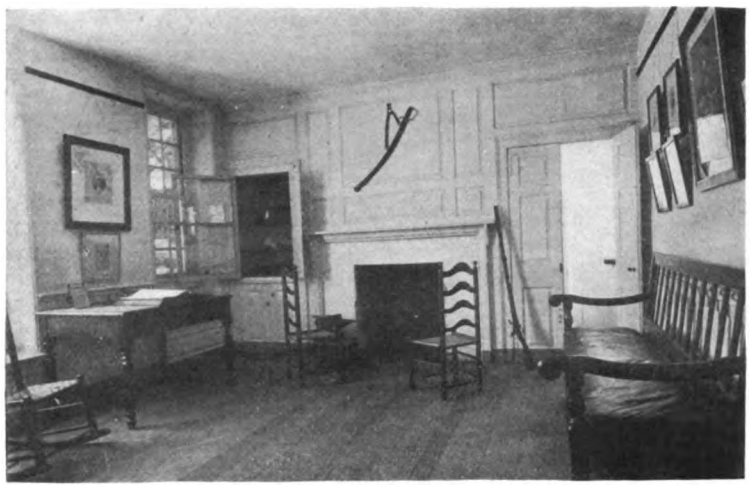
"From Hagerstown our route was to Waynesboro, Penn., a distance of 12 miles, then to Rousersville, three miles. From Rousersville the Blue Ridge Mountains were crossed at Penn Mar, a climb four miles long. Although this mountain is very steep, the climb was made by our Pope-Tribune on the intermediate gear. From the Penn Mar summit a beautiful view can be had of the two States. Emmettsburg came next, 16 miles: then Littlestown, 20 miles. Up to this time everything had run smoothly, but we had been bothered very much by frightened horses and had to stop many times. The roads were in very bad shape to Hanover, being, in many cases, what is known in that country, as abandoned pike. The water breaks, particularly, were very trying on the springs. From Hanover the route was to York. The entire trip up to this point had been made over mountain roads badly washed by rain, and the strain on the vehicle was correspondingly severe.



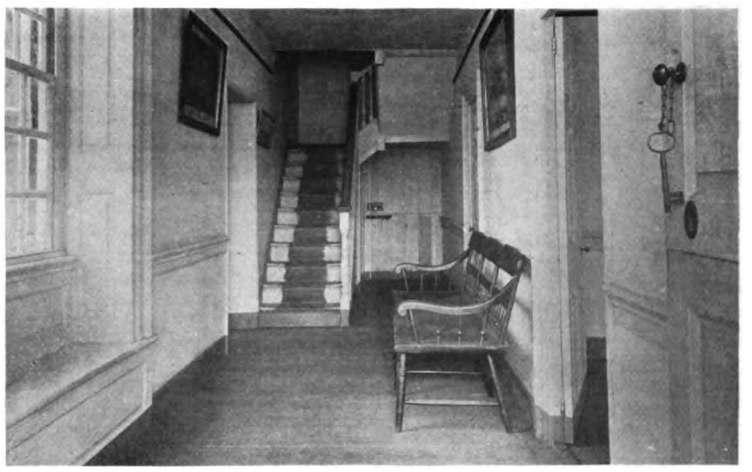
WASHINGTON'S HEADQUARTERS AT VALLEY FORGE DURING THE WINTER OF 1777-78

"In order to make up for the time lost on the mountain roads, it was determined to run as far that night as possible, and after leaving York we went through from Wrightsville to Columbia, 14 miles. This is a toll road and the charge is 21 cents.

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INTERIOR OF THE HISTORIC MANSION

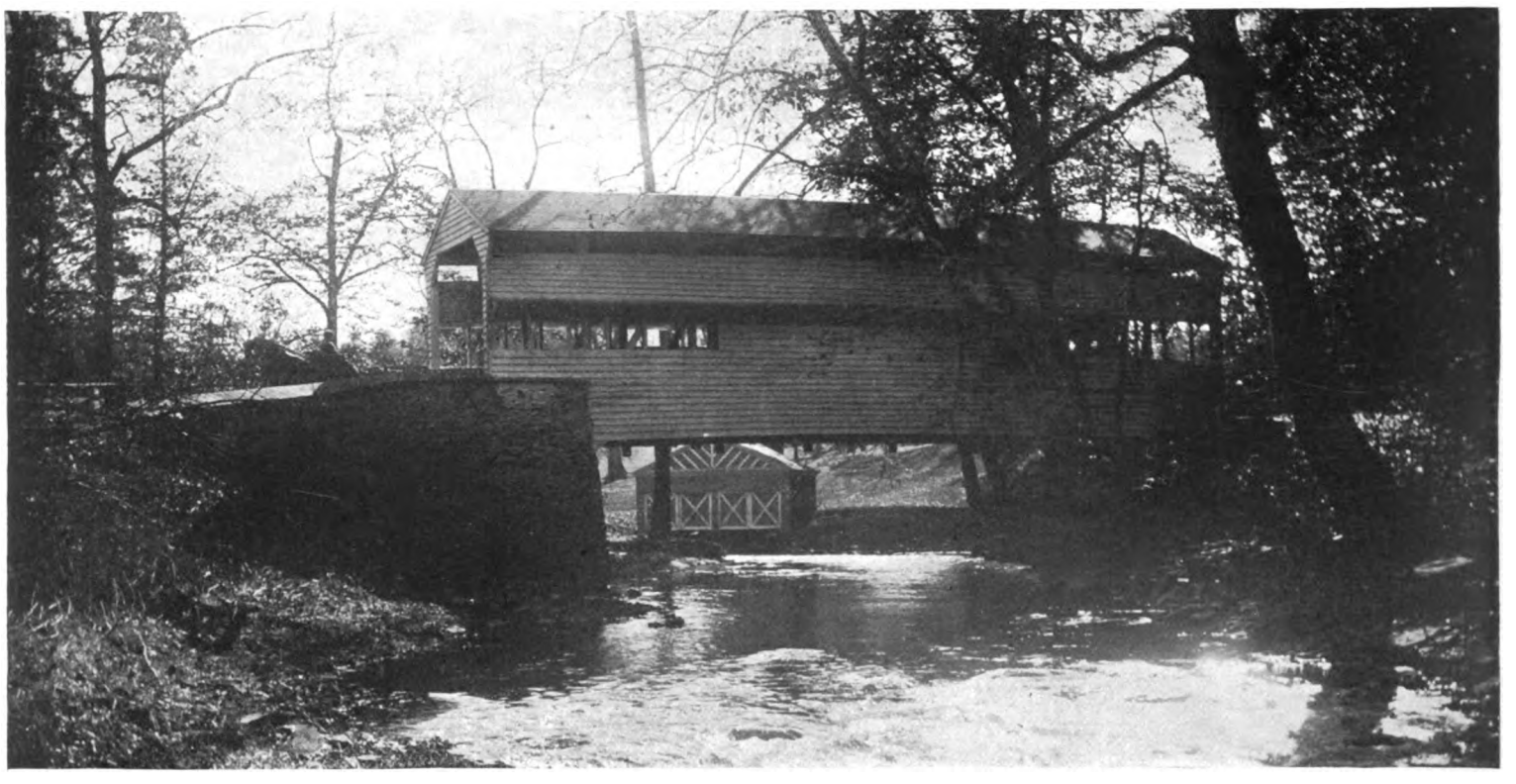


THE BIG KEY THAT LOCKS THE DOOR

Between Wrightsville and Columbia is a toll bridge owned by the Northern Central Railroad and used for passenger and vehicle traffic, as well as for railroad service. The company charges 41 cents toll over this bridge for a motor car.

"From Columbia the run was to Lancaster, 16 miles, with a toll of 22 cents, and from Lancaster through White House, to the Pennsylvania Railroad for the privilege of crossing its bridge. The tickets they gave us called for a wagon, a herd of cattle, and two passengers.

"From Trenton to New Brunswick, by way of Hightstown and Dayton, we had splendid New Jersey roads. From New Brunswick the run to Metuchen was five miles, and from



ACROSS VALLEY CREEK THERE IS A BRIDGE BUILT LIKE ITS OLD PREDECESSOR

Coatesville, Dowingtown, Malvern, Waynes, and Bryn Mawr to Philadelphia, 67.5 miles. Arrived at Philadelphia early Sunday morning; we found that it is the custom of a great many motor parties to make this run during the night, to avoid the excessive tolls, which would amount in some places to as high as 5 and 6 cents per mile over the veriest apology for roads. The toll-keepers generally go to bed about midnight, so that motorists are not interrupted.

After getting breakfast we left Philadelphia for Trenton via Frankfort, Tacony, Bristol, and Tullytown. The good roads in this section stood out in strong contrast to the wretched ones over the lower end of the route. At Morrisville, Penn., just across the river from Trenton, we stopped and removed all our license tags, as the New Jersey authorities do not permit any license except those belonging to that State. At this point we handed out 51 cents



THE OLD MEETING-HOUSE WHERE WILLIAM PENN WORSHIPED

Metuchen to Perth Amboy about 10 miles, and there we crossed the ferry to Tottenville, S. I. Across Staten Island to St. George, we replenished there our gasoline supply.

"Leaving Forty-second Street at about 10 o'clock at night, determined to ride as far as we could on the way to New Haven, neither of us familiar with the road, we got lost several times during the night, and finally at about 4 o'clock in the morning found ourselves at Port Chester, only 27 miles away from New York. We disgustedly took some sleep, resumed a little after 10 o'clock, and arrived at Bridgeport at 1:30 P. M. without any stops, except at Stamford to take on gasoline. We went from Stamford to New Haven, arriving at College Green at 2:45 P. M. From there our route led to Meriden and New Britain, stopping at the latter place about half an hour for supper, and we reached Hartford about 6:30 P. M."

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TAKING CARE OF THE ENGINE

By Igniter

Altogether too many motorists seem to believe that, as long as their motor will run, all is well with it. Only when it absolutely gives out and refuses to propel the car, do they think it needs attention, and thus do they permit trouble to accumulate insidiously until an inevitable day of reckoning comes upon them. The fault in this policy consists in mistaking repair for care. Repairs are necessary enough when necessary at all, but intelligent care is the one thing that will avoid the necessity for repairs and insure continued, satisfactory service.

A prime element in proper care is the maintenance of efficient lubrication, since lubrications avoids wear. No engine should be run for a moment with the lubricating system out of order. A sufficient supply of oil—and nothing but specially adapted, high-grade, mineral oil at that—must be fed uninterruptedly to the connecting rod and crankshaft bearings, to the valve stems and the half-motion shaft bearings and cams, and particularly into the cylinder, between the piston and the cylinder walls. For cylinder lubrication, the use of oil containing a small percentage of flake graphite is considered by many desirable, especially if the method of lubrication is by oil splashed from the crank chamber. With reservoir and oil-cup lubricating systems, an admixture of graphite is under some circumstances likely to settle to the bottom of the oil, a tendency that is less marked, however, with thick oil, or during cold weather.

After lubrication, the most important point in keeping a gasoline engine in good condition is the adjusting away of such wear as does occur. Some wear must occur at every point where two surfaces rub together, and the first symptom of such wear is a looseness between or a change in the relations of the parts affected. A worn shaft, for instance, will rattle in its bearings; worn cams will cause valves to open earlier or later than they should.

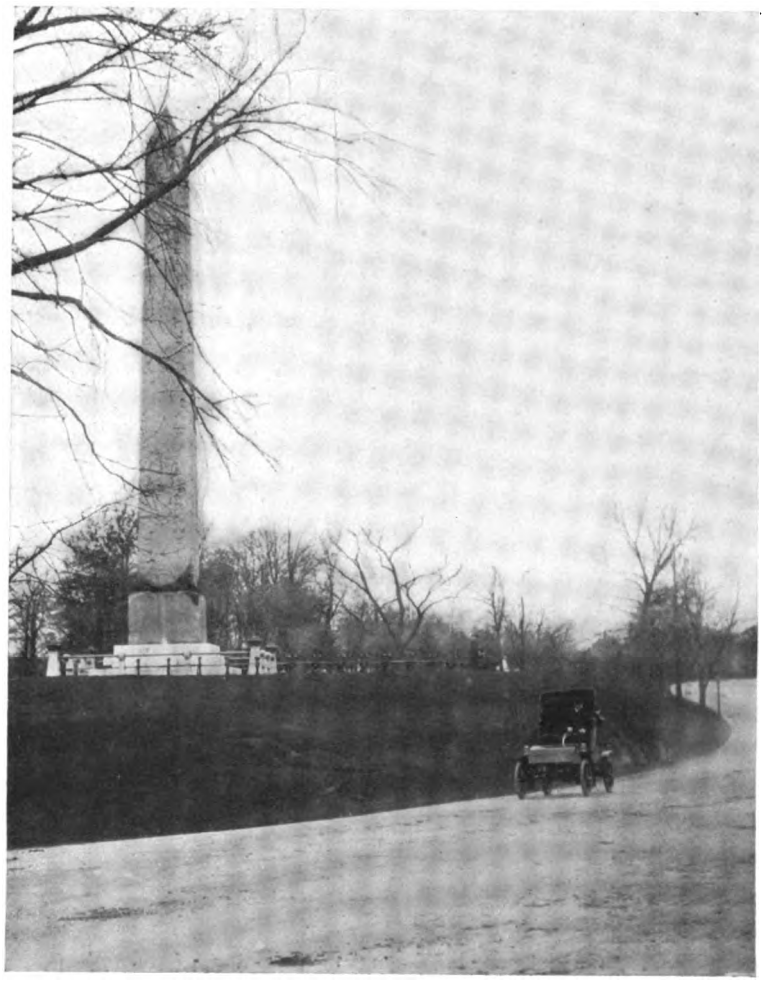
The least looseness in the bearings of a connecting rod, or even in the mainshaft of an engine, though it may be hardly perceptible to the hand or eye, will set up a jarring knock or pound, under the powerful and regular reversals in the direction of movement of the piston. This noise will speak plainly to any ear that once has recognized it, and, if the lost motion that causes it is not immediately eliminated, will prove most destructive.

Connecting-rod bearings generally consist of pairs of brass or bronze blocks, clamped into the ends of the rod, and hollowed out so that each pair fits closely about a shaft or bearing pin. To adjust such a bearing, when the brasses are worn, the edges of two of the brasses where they are in contact with each other should be filed, to let them come closer together and grip the shaft more tightly. The shaft should not bind, however, though there must be no looseness; and to prevent binding it may be necessary to hollow out the brasses in spots by the careful use of a round file, frequently testing the fit as the work proceeds. Another way of rectifying too tight a fit is to interpose shims—very thin pieces of sheet metal—between the edges of the brasses, to hold them farther apart. When the work is finished, it must not be forgotten to clamp the brasses tightly in place again.

Ball bearings, when adjustable, are tightened or loosened by moving the cups and cones that constitute the ball races, in which the balls run. A lock nut or the equivalent is provided to hold the adjustable member in any desired position. There is a growing tendency, among motor-car manufacturers who use ball bearings under heavy duty, to provide for replacement instead of adjustment. Their theory is that when a ball bearing is enough worn to require adjustment, it is enough worn to make replacement preferable, especially in view of the fact that new bearings, all assembled for ready insertion in their proper places, can be provided at very small cost.

A common cause of loss of power in gasoline engines is poor compression. This may be due either to the piston rings failing to bear smoothly and evenly against the cylinder wall, or to one of the valves, usually the exhaust, not closing tightly.

Piston rings should be perfectly smooth and elastic, and so true as to make a tight fit against the inside of the cylinder. Both the compressed and the exploded charges thus are kept from leaking out past the piston, which, while it must fit gas-tight in the cylinder, also must move within it free. To inspect or repair the piston rings is with most motors a task requiring some time, though it is not one of great difficulty. With an ordinary four-cylinder, vertical engine, the bolts that attach the cylinders to the crank case must be loosened and the ignition circuits and the connections to the cooling system disconnected. Then, with care, the cylinders can be lifted, one at a time, off the crank case, the piston pulling out of it and remaining attached to the connecting rod. The piston rings should appear bright all around — corroded or tarnished spots indicating points at which leakage of the gases takes place. In such a case, it is best to fit a new ring, which must be sprung carefully over the head of the piston and into the groove provided for it, since it can be broken very easily. In an emergency, it sometimes is possible to repolish an old ring and perhaps to bend it enough so that it will fit tightly for a while at least.



THE OBELISK IN CENTRAL PARK IN WINTER TIME

Replacing the cylinders may be a matter of some difficulty, because of the rings catching on their edges. Some makers follow the very good plan of flaring the lower end of the cylinder bore, so that a wedging action will constrict the rings into place. In other constructions, it is generally necessary to constrict the rings by a turn or two of stout twine around each one. The twine can be taken off as the edge of the ring enters the cylinder. In bolting the cylinders again to the crank case, the holding nuts all should be slightly tightened before any of them are set up very tight.

Valves must fit very closely on their seats, and there will be little difficulty in maintaining inlet valves in this condition. Exhaust valves, however, because of the outrush of hot gases at high pressure under their edges, soon become corroded and pitted. This makes it necessary to regrind them, which is done by applying a small quantity of oil and grindstone dust, or powdered glass, to their seats, and then rotating the valve, while holding it in place with some pressure. Springs for mechanically-operated valves, exhaust, and inlet, require simply to be heavy enough to insure positive closing. The valve mechanism will be strong enough to open them, even if they vary considerably in the power required to compress them.

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TWO KINDS OF GOOD ROADMAKERS

By Robert Bruce

When touring through the country there is one thing which especially cheers the heart of the motorist. Perhaps he has been spinning over good roads most of the day and finally comes to a sandy or rough place between two villages. Slowing up with anything but cordial feelings toward the authorities who are supposed to keep the way in good condition, he spies on a post by the wayside a warning: "Beware of the Steam Roller." Paradoxical as it may seem, his frown changes to a beaming smile, and, cheerfully changing his tune, he remarks: "There, that's something like. These people are improving their highways." At snail's pace the car creeps along, but the party, enthused by the new interest of its owner, care little and watch closely the signs of progress.

For the time being, of course, the road is almost impassable, but one can afford to struggle through this or even make a wide detour in order to avoid it, secure in the knowledge that a few weeks or a few months hence he may speed over miles of well-made and well-kept roads where heretofore has been disagreeable traveling.

The sentiment throughout the country is at flood tide in favor of good roads. The factor most important in reaching this happy state of affairs is, of course, the motor car. During the era of the railroad and trolley transportation the great majority of country roads have received very little attention, with, of course, the exception of those most popular for pleasure drives, or as stage routes to the villages back from the railroad towns. With the advent of the motor car all parts of the country awoke anew to the advisability and necessity of perfecting their systems of roads, and everywhere one sees signs of effort—successful effort, too—in furthering this worthy object.

The party in the touring car shown in the accompanying picture was making a trip from the Hudson River to Long Island Sound by one of the numerous cross roads threading that territory. A photographer being of the party it was suggested that a snapshot taken of the car with a background of steam roller, teams, and workmen would be a typical illustration of scenes to be found in all parts of the country to-day where this "good work" is going on, due very largely to the interest and support of motorists or those sympathizing with motoring.

A close view of the foreground will show that this road has been scraped and rounded for the purpose of preparing a suitable bed for the macadam. Tourists who have met gangs of this character will probably remember how friendly the team owners and the workmen appear to be to the motor cars and their users. Seldom, if ever, are the teams afraid or the engineer of the steam roller unwilling to give the motorist his rightful half of the road. Perhaps he realizes that there is a relation between the motor car and the steam roller, due to the fact that they are both modern "road makers." The workmen invariably have a friendly attitude, possibly from the fact that the use of the motor car strengthens and extends the demand for better roads and thus makes more work for them.

This feeling of good fellowship now existing will go far toward making possible a future system of American thoroughfares that will compare favorably with foreign roads of which we hear so much. Massachusetts and New Hampshire have had a new stimulus in the recent trips of motorists to the White Mountains; New York has awakened to the crying need in view of the late Vanderbilt road race, all of which is bound to have a good effect upon this question; while the whole list of Northern States has been forced to listen to criticism, favorable or adverse as the case may be, from the tourists to St. Louis and other places.

Much has been done, yet there is plenty of room for improvement. However, it seems safe to predict, in view of comments heard and the energy exerted throughout the sections where motoring is most enjoyed, that in a comparatively short number of years bad stretches of road, unless in an unfrequented spot, will be a rarity instead of an ever-present trouble as now they frequently are.



ON A NEW YORK STATE ROAD WHERE THE MOTOR CAR AND THE ROLLER MET

What may be called a practical competition is to be held at Marseilles this year, viz., for motor vehicles capable of transporting heavy loads. The novelty consists in the manner in which these vehicles are to be tested. Each constructor enters his vehicle with a declaration of the weight it is intended to carry. Then the vehicle will be set apart during a period of a fortnight for the use of some factory or works where similar weights are transported every day. At the end of the fortnight the vehicles will be removed and the prizes and certificates will be awarded in accordance with the reports handed in by the different factories. This competition should be very popular. —*The Car.*

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SYNOPSIS OF FIRST CHAPTER, BY E. F. BENSON.

Lady Beeston, the wife of Sir Wilfred Beeston, is enthusiastically fond of motoring, and at a bridge party at their home in Hampshire she entertains the guests with a weird rhapsody, concerning the delight she experiences in driving her new car at railway speed about the countryside, and her belief that it possesses some sort of independent life and intelligence, depending, however, upon human presence and contact. In the party are Gerald Morton, a former suitor of Lady Beeston's, and Muriel Carrington, who Lady Beeston considers very well suited to each other. Later in the evening, Gerald, Sir Wilfred, and Bertie Farquaharson are discussing the talk of the party, and at last happen to step out of doors for a moment. The night is starry and clear, but bitingly cold. They turn to go in, when Lady Beeston's car throbs rapidly down the drive, surveys the beams from its great, eye-like lamps for a moment upon the observers, and then passes like a whirlwind to the stables. Despite the darkness, the outline of the car clearly indicates that it carries no passenger.

CHAPTER II.

The lights had been extinguished; all was darkness and silence within the great house. Outside the frost-bound earth lay frigid and white beneath a starry sky.

Lady Beeston drew aside the curtain from her window, and looked out.

"How different it all is now"—she was thinking—"only a few months—and this grass was green, there were roses and fuchsias and geraniums in those beds, gardens and woods were abloom with life and beauty, and I—I had not learnt motoring."

She smiled softly, her eyes on the graveled drive. The thought of her car dashing down to the gates beyond suddenly came to her, and with it a certain sense of unrest, uneasiness, a vague longing that had of late seemed like obsession. To think of the "Monster," as she called it, was to long for it. That great living, wonderful thing with its passion for motion seemed to call and claim her as a kindred spirit. She wanted to feel the throb of its quickening pulses; to lay her hand on lever and handle and thrill with the sense of mastery; to claim its power as her own—and feel its sullen-yielded obedience answer her will. Late as the hour was she would have loved nothing better than to dress herself again and steal out amidst the shadows and silence to the stable door, and then with a laugh and a leap set free her untamed steed and dash forth under the wintry stars, into night, into space. She and the Monster alone.

With a sudden shiver she dropped the curtain and turned to the warmth and comfort of the room.

"What a foolish idea," she said half aloud; "and of course we wouldn't be alone, there's always Pierre. I think he gets as mad as myself."

As she stooped toward the fire, the door of the adjoining dressing-room opened and her husband entered. "Why, Dot—still up!" he exclaimed, in evident surprise.

She drew a low, deep chair toward the fire and motioned him to take it. Then she nestled down on the soft rug, and laid her head against his knee.

"Wilfred," she said, "do you think people ever go mad—really insane—by dwelling too much on one idea?"

He laughed. "I've no doubt they do. But it's not likely to be your fate; if anything you suffer from a plurality of fads and fancies. One does not engross you very long. Why do you ask?"

"I was thinking of that—sketch."

"What, Gerald's?"

"Yes. There's something about it—a look in the eyes—the unreasoning callous indifference to cruelty inflicted; the momentary mad oblivion of all and anything except that delirious sense of speed, that haunts me. If—in—in some dark moment, as he depicts, my mind lost balance—control—if I cared nothing, saw nothing, felt nothing, except the triumph of the moment. If even death could not stay speed—or bring remorse . . . a human death—would I be a murderess?"

She looked up into his face, and he saw that her eyes were strained and anxious—her very lips white. He drew her into his arms. "Why, my darling, you look quite ill! Don't give way to such fancies, or you'll end—"

"By becoming a motor-maniac. That is what I feared. Why I asked. Wilfred, I'm not the same woman once I and the car are together. I love it as I used to love my horse, Pluto."

His hand tightened on hers. "The brute that nearly killed you."

"Yes. You know father made me part with him then, and I had to give up hunting. But this is just as good. I cannot imagine my life without it. Without the knowledge that I have close by my side—at my beck and call—a huge, terrible, untamed Thing whose service and existence are exclusively my own."

"Then you did mean what you said it that rhapsody of yours to-night?"

"Every word. . . . While I said it."

Her husband was silent for a moment, his troubled eyes on the down-bent face, now flushed and rosily beautiful in the fireglow.

"Oh, Dot," he said, "my precious and beloved, you terrify me when you talk like this. My life is so bound up in yours that the very thought of accident, or danger—"

She laughed softly.

"All life is beset by them, Wilfred. They don't exist only for motorists. A cycle, an express train, a runaway horse, a shipwreck, a boating collision, a fire—why, if once we begin to count the risks we run, life wouldn't be worth living."

With a sudden graceful movement she freed herself from his arms and stood upright, a slender figure in pale blue draperies, with long rippling hair.

Ardor and admiration flashed into his eyes. "I wonder if you really love me, Dot," he said, softly. "If, after all, Gerald would not have suited you better?"

She looked quickly at him. "Dear old stupid; how absurd you are! No one would have suited me quite as you do. Let that comfort you. As for Gerald—"

"I hardly think your match-making project will come off, do you know?"

He rose also, and stood leaning one arm on the mantel shelf, gazing down into the glowing coals.

"By-the-bye, Dot, I forgot to tell you something. Do you remember after dinner to-night, when Bertie and I were behind as you all went into the drawing-room?"

She nodded. "Well?"

"I went to the front door to see if the frost was still holding, and as I stood there your motor dashed in. It was going fully sixty miles an hour, I should say. Did you know Pierre was using it?"

"No. I had no idea."

"I thought something might have been wanted in the village."

"Why, the shops would all have been shut at that time."

"So they would." He laughed constrainedly. "Well, it's rather odd altogether; but neither Bertie nor I could see who was driving."

"I thought you said Pierre—"

"I mentioned him, of course, as the only person who would have the right to use it. But—well, the truth is there seemed to be no one in the car."

She turned swiftly, her blue eyes dilated and full of something so near akin to fear that he tried to laugh away his own uneasiness.

"I—I sent for Pierre. He denied that he had used the car, or that it had left the coach house since you came home this afternoon."

"But, Wilfred, that's absurd! You couldn't fancy you saw a motor car! And if you saw one some one must have been driving it. It couldn't go alone, at least."

She stopped abruptly. "I—Oh! But, of course, it's altogether ridiculous. I mean what I said about its going of itself. That's how it feels sometimes; as if it had a life and meaning apart from one's own control. As if neither I nor Pierre were really of consequence, except just to give the signal. Then it stirs, and moves, and becomes a living thing—"

"Dot, for God's sake—" he interrupted.

She held up her hand. "A living thing I tell you—given up to its one passion—Motion! What I said to-night was true—every word."

That smouldering fire burst forth in her blue eyes once more. It frightened him; and he laid a firm hand on her shoulder. Even as he did so he felt the nervous tremor of her frame.

"Come, little woman, this won't do," he said. "You are over-wrought and over-excited. I shall have to forbid motoring altogether if it has such an effect upon you."

"Our brains are all more or less topsy-turvy nowadays," she said, with a sudden mocking laugh. "We go crazy over things instead of taking them lightly. Look at Bridge, for instance. The Bridge devotee talks of nothing else—thinks nothing else. And it's the same with this motor crank. What ails us all, Wilfred? We seem to have lost balance. We can't take life temperately, easily, as our forefathers did. We exhaust ourselves in getting any pleasure, and no pleasure is worth getting unless it holds excitement or danger!"

"It's the fault of the age," said her husband. "But now, I think, dearest, you really need some rest. You've talked enough."

"As if a woman ever had that chance!"

"I suppose not. But I'll give you no more chance to-night. It's not often I exert authority; but you must remember all you have to do to-morrow, and how close at hand Christmas is. You'll lose your bloom and freshness if you don't get enough sleep."

She laughed softly. "Well, good night. I'll go to bed and dream"—

She paused, her brilliant eyes on his adoring face. "Dream—of my Monster," she concluded, with a glance as tantalizing as it was tender.

(CONTINUED ON PAGE 54.)

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ELECTRICITY'S PART IN MOTORING

Little Lessons in Motor Mechanics, No. 8

By Victor Lougheed

Electric motor vehicles, of all common types, invariably are driven by *electric* motors, the power of which is furnished by electric current from a storage battery or a dynamo. The usual practice is to use a storage battery, though some cars exist in which a gasoline engine, steam turbine, or similar prime mover, carried on the vehicle, drives a dynamo that generates current for the motors.

Electric Motors consist of two principal elements—one, usually stationary, a large magnet, having two or more poles, and energized by a coil of insulated wire wound about it. The other element, which usually rotates, is the *armature*. This may be built in any one of a variety of ways, but the general principle of its construction always is such that alternate attraction and repulsion of the field magnet upon its poles cause it to rotate. From the shaft of the armature, the vehicle may be directly or indirectly driven. A typical electric motor of simple form is sketched in Fig. 61, in which *a* is the horseshoe *field magnet*, of soft iron, but energized like a common steel magnet, by the windings of wire at *b* and *c; d* is the armature with poles *e* and *f*, which are alternately attracted and repelled by the poles *g* and *h* of the field magnet. For the armature also is a magnet, because of the wire wound about it at *d* and *i*. The wires from the battery or other source of current are *j* and *k*. This motor shown being a *direct-current* motor, of the type used in motor-vehicles, a *commutator* is necessary to commutate the current in the armature in such a manner as to produce the rapid reversals of polarity upon which the operation of the motor depends. A commutator is shown in its simplest form at *l*, Fig. 61, and consists simply of the cylinder *n*, of insulating material, surrounding the shaft *m*, and into which two contact strips of copper, *o*, denoting one of them, are set. These contact strips form the two terminals of the armature winding *i*, through which the current passes during such periods of the armature revolution as the two brushes, *p* and *q*, are in contact with them.

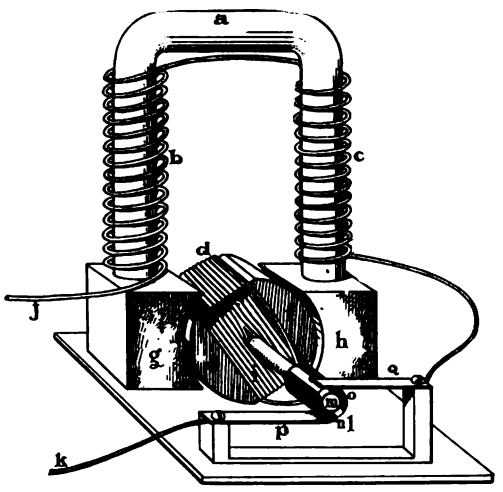


Fig. 61.—A Simple Electric Motor

It is a principle of electric action that the north pole of one magnet repels the north pole and attracts the south pole of any other magnet. It is this principle that is made use of in effecting the rotation of an electric motor. An electro-magnet, unlike a permanent magnet, is magnetized only while the current passes through the coils of wire surrounding it, and its polarity always depends upon the direction in which the current flows; consequently, if the current be reversed in the armature, the polarity of the armature is reversed. From all this, it is evident that, with the armature in the position shown in Fig. 61, and with both it and the field magnet of a given polarity, the armature poles will be attracted by the field magnet poles, and the armature will tend to stop in a position of balance, with *e* attracted by *g*, and *f* attracted by *h*. But as a slight farther rotation than that shown will break the contact of *o* with *q*, and of the other segment of the commutator with the other contact brush, *p*, the moment balance is effected it is immediately undone by the action of the commutator, which reverses the connections with the source of current, and cause it to flow the opposite way through the armature. Therefore, as every half revolution of the armature reverses the relation of the commutator segments to the brushes and to the current supply, it is clear that this regular reversal of polarity always must come just at the moments the armature tends to come to a stop in a balanced position. Consequently, the commutator causes the armature to rotate as long as current is provided.

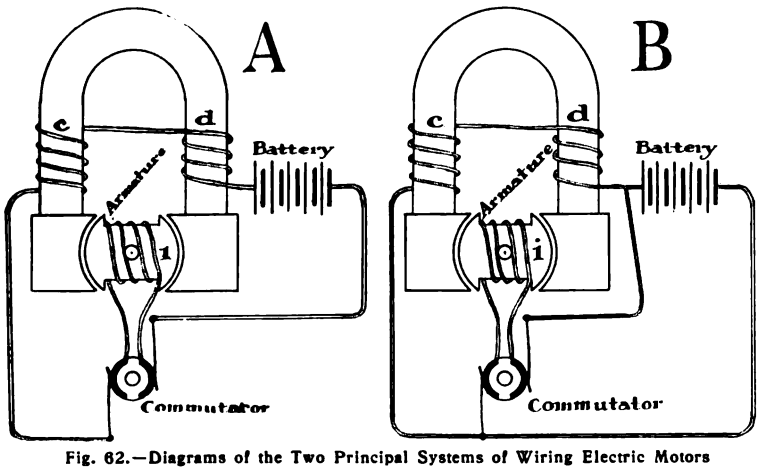


Fig. 62.—Diagrams of the Two Principal Systems of Wiring Electric Motors

Many electric motors are, of course, more complicated than the one illustrated, the windings both of field and of armature, being probably more numerous, and the segments in the commutator correspondingly so, but the basic principle in all cases is the same, and a careful study of any given motor, with this fact borne in mind, will result in a clear comprehension being had of it.

The field coils of a motor may be connected either in *series* or in *parallel* with those on the armature. Samples of these two arrangements are diagrammed in Fig. 62, in which A shows the coils in series, the current passing first through the two field coils *c* and *d*, and then through the armature coil *i*. In B, Fig. 62, the current is split, part of it being sent through the field coils *c* and *d*, and the other part being diverted through the armature coil *i*.

Many electric motor vehicles have two motors, one driving on each rear wheel, thus avoiding the necessity for a differential. Some have a single motor, carried on the rear axle, or up under the body of the car, driving by any of the well-known means of transmission, chain or a spur gear generally being preferred, however. There are a few vehicles with motors driving each of the four wheels, and at least one case in which a car is built with motors located directly within the wheels, driving on the axles without any intermediate gearing or transmission.

Storage Batteries of the ordinary lead type already have been treated in Lesson No. 5, on Ignition Systems.

Storage batteries of the alkali type, in which an alkaline fluid is employed instead of an acid, and in which thin iron plates, carrying perforated sheet metal cells, in which oxide of nickel is compressed, have been lately developed to a high degree of efficiency. The Edison cell, which is of this type, is rather lighter, though bulkier, for a given storage capacity than are the best makes of lead cells; and it is claimed to possess additional advantages in the way of long life and capacity for charge and discharge without injury. Its efficiency, however, is lower, not over 50 or 60 per cent. of the power of the charging current ordinarily being represented in its output.


Fig. 63.—Underslung Battery, at A

The cells of a storage battery in a motor vehicle usually are grouped in such manner that any required power within wide limits may be taken from them. It is common practice, in typical electric vehicles, to carry forty-four cells of lead battery, underslung from the frame work of the vehicle, as shown in Fig. 63, or carried within the body, as shown in Fig. 64.

Controllers for Electric Vehicles in their simplest form consist simply of switches for turning the current on and off. As usually made, however, they provide for connecting the motors with the battery in various different combinations, so that a number of different speeds, each corresponding to the number of battery cells, and the way they are connected, are available. A separate lever for reversing is fitted to most controllers.



Fig. 64.—Batteries in Body, at BB

Indicating Devices are essential for all electric vehicles, as they provide the only ready means of knowing the condition of the batteries and when it is necessary to recharge them. A *voltmeter* and an *ammeter* should be fitted to or carried with every electric vehicle. The ammeter indicates whether or not the batteries are connected as they should be in any given position of the controller handle, and what current is being given, and the voltmeter will show when the batteries are so far discharged that recharging becomes imperative.



Fig. 65.—A Pocket Ammeter

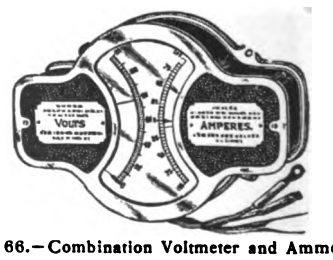
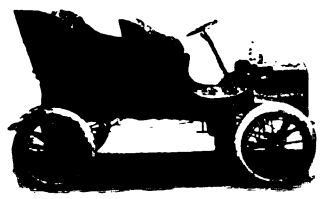


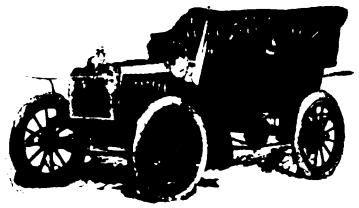
Fig. 66.—Combination Voltmeter and Ammeter

A pocket ammeter is shown in Fig. 65, and a combination voltmeter and ammeter is shown in Fig. 66.

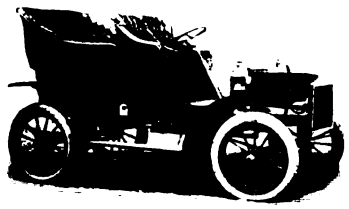
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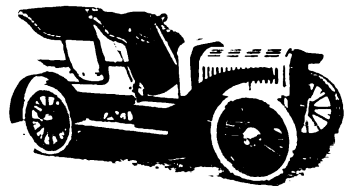
MICHIGAN



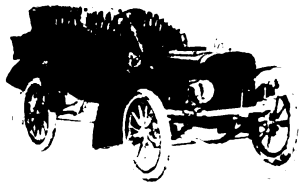
AUTOCAR



MICHIGAN



FRAYER-MILLER



FORD



AUTOCAR



WHITE



MAXWELL-BRISCOE



DURYEA



COVERT



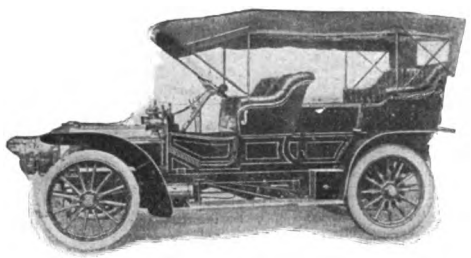
MERCEDES



NORTHERN



MERCEDES



LEON-BOLLEE



MORS



PIPE



SYNNESTVEDT



COLUMBIA



COLUMBIA



STUDEBAKER



GROUT



KNOX



LANE



WHITE



WHITE

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Wolverine	1,700	Side entrance	5	1,700	Angle steel	2—Half; elliptic	Tubular	Wood, artillery	Optional, 30x3 1-2	Horizontal, amidships; 5x5; 1600 max	2—Opposed	18	Waterjackets castiron: 2 tubu
Northern	1,700	Side entrance	5	2,100	Angle steel	4—Full-elliptic	Tubular	Wood, artillery	Optional, 30x4	Horizontal, crosswise; 5 1-4x5 1-4; 900 max	2—Opposed	——	Waterjackets integral: tubular
Studebaker	1,650	Side entrance	5	2,080	Armored wood	4—Half-elliptic	Tubular	Wood, artillery	Clincher, 30x3 1-2	Horizontal, amidships; 5x5 1-2	2—Separate	14-16	Waterjackets integral: tubular
Orient	1,650	Side entrance	5	1,450	Pressed steel	4—Half-elipaic	Tubular	Wood, artillery	Clincher	3 1-4x3 1-4	Four	14-16	Air-cooled
Moline	1,600	Side entrance	5	1,700	Angle steel	2—Half; 2—Full	Tubular	Wood, artillery	Optional, 32x3 1-2	Vertical, in front; 4x4 1-2; 900 rev	4—In pairs	18	Waterjackets integral: tubular
Logan	1,600	Side entrance	5	1 620	Angle steel	4—Full-elliptic	Tubular	Wood, artillery	Optional, 30x3 1-2	Horizontal, amidships; 1220 rev	2—Opposed	20	Waterjackets integral: tubular
Duryea	1,550	Folding front	4	1,200	Armored wood	3—Half-elliptic	Tube & solid	Wood, artillery	Dunlop, 30x3 & 36x3	Inclined, in body; 4 1-2x4 1-2; 500 rev	3—Integral	12	Waterjackets integral; tubular
Maxwell-Briscoe	1,550	Side entrance	6	1,800	Pressed steel	4—Half-elliptic	Tubular	Wood, artillery	Optional	Horizontal, in front; 5x5; 1000 rev	2—Opposed	16	Waterjackets integral; cellular
Knox	1,500		4	——	Angle steel	2—Platform	Nickel steel	Wood, artillery	Optional	Horizontal, amidships; 6x5; 1100 max	2—Opposed	14-16	Cylinders studded with steel
Haynes	1,500	Side entrance	4	1,500	Pressed steel	2—Half; 2—Full	Tubular	Wood, artillery	Diamond, 32x3 1-2	Horizontal, amidships; 5x5; 1400 Max	2—Opposed	15	Waterjackets integral; tubul
Mitchell	1,500	Side entrance	5	1,700	Pressed steel	4—Half-elliptic	Tubular	Wood, artillery	Hartford & Dunlop, 30x3 1-2	Vertical, in front; 4x4 1-2	4—Separate	16-18	Waterjackets integral: tubular
Marion	1,500	Side entrance	5	1,600	Armored wood	4—Full-elliptic	Tube & solid	Wood, artillery	Optional	Vertical, in front; 4x4; 900 rev	4—Separate	16	Flanges cast on cylinders: air
Delson	1,500		5	2,050	Trussed steel	4—Full-elliptic	Tube & solid	Wood, artillery	3 1-2-inch & 4-inch	Horizontal, amidships; 5 1-2x6; 600 rev	2—Opposed	20	Waterjackets integral; tubular
Walworth	1,500	Tonneau	5	1,500	Angle steel	4—Half-elliptic	Tube & solid	Wood, artillery	Fawkes, rubber cushion, 3-inch	Horizontal, amidships; 5 1-2x5 1-2; 1200 max	2—Opposed	14	Waterjackets attached: tubula
Rambler	1,500	Side entrance	5	2,000	Pressed steel	4—Full-elliptic	Tubular	Wood, artillery	Optional, 30x3 1-2	Horizontal, amidships; 5x6; 1000 rev	2—Opposed	16	Waterjackets integral: cellular
St. Louis	1,500	Delivery wagon	—	1,725	Angle steel	2—Half; 2—Full	Tube & solid	Wood, artillery	Clincher or Solid, 30x3 1-2	Horizontal, amidships; 6x5 1-2	One	12	Waterjackets integral: tubular
Oldsmobile	1,400	Side entrance	5	——	Angle steel	2—Platform; 1—X	Tubular	Wood, artillery	Diamond, 30x3 1-2 & 30x4	Horizontal, amidships; 5 1-4x6	2—Opposed	20	Waterjackets integral: cellular
Autocar	1,400	Tonneau	4	1,700	Armored wood	3—Half-elliptic		Steel, artillery	Fisk, 30x3 1-2	Horizontal, crosswise; 4x4; 1000 rev	2—Opposed	12-14	Waterjackets integral: cellular
Premier	1,400	Tonneau	6	1,500	Pressed steel	4—Full-elliptic	Tubular	Wood, artillery	G. & J., 32x3 1-2	Vertical, in front; 3 3-4x4 1-4; 800 rev	4—Separate	16	Ribs on cylinders: air-cooled
Franklin	1,400	Runabout	2	1,000	Armored wood	4—Full-elliptic	Tubular	Wood, artillery	Diamond or Goodrich, 28x3	Vertical, crosswise; 3 1-4x3 1-4; 600 rev	4—Separate	12	Flanges cast on cylinders: air
Stevens-Duryea	1,250	Runabout	4	1,350	Wood	4—Full-elliptic	Tubular	Wood, artillery	Fisk, 28x3	Horizontal, amidships; 4 3-4x4 1-2; 600 rev	2—Opposed	7	Waterjackets integral: fin radi
Michigan	1,250	Side entrance	5	1,700	Angle steel	4—Full-elliptic		Wood, artillery	Clincher, 3 1-2-inch	Horizontal, amidships; 4 3-4x5; 900 rev	2—Opposed	13-16	Waterjackets integral: tubular
Reo	1,250	Side entrance	5	1,500	Pressed steel	2—Half; 2—Full	Tubular	Wood, artillery	Clincher, 30x3 1-2	Horizontal, amidships; 4 3-4x6; 900 max	2—Opposed	16	Waterjackets integral: tubular
Elmore	1,250	Side entrance	5	1 500	Trussed steel	4—Half-elliptic	Solid	Wood, artillery	Optional, 3 1-2-inch & 3-inch	Two-cycle, amidships; 4 1-2x4; 1500 max	2—Integral	16	Waterjackets integral: tubular
Reliance	1,250	Side entrance	5	1,835	Channel iron	4—Full-elliptic	Tubular	Wood, artillery	Fisk, 30x3 1-2	Horizontal, amidships; 4 3-4x5 1-2	2—Opposed	——	Waterjackets integral: tubular
Pierce-Racine	1,200	Side entrance	4	1,400	Angle steel	4—Full-elliptic	Tubular	Wood, artillery	Optional, 30x3 1-2	4 1-2x5; 900 rev	2—Integral	14	Waterjackets integral: tubular
Model	1,200	Side entrance	5	1,200	Angle steel	2—Half; 2—Full	Solid	Wood, artillery	Diamond, 30x3	Horizontal, amidships; 4 1-4x5; 1000 rev	2—Opposed	12	Waterjackets integral: tubular
Wayne	1,200	Tonneau	5	1 550	Pressed steel	4—Half-elliptic	Tube & solid	Wood, artillery	Optional	Horizontal, amidships; 5x5; 900 rev	2—Opposed	16	Waterjackets integral: tubular
Pierce-Stanhope	1,200	Runabout	4	1,250	Tubular steel	4—Full-elliptic	Solid	Wood, artillery	Goodrich, 30x3	Vertical, amidships; 3 15-16x4 5-16; 1800 max	One	8	Waterjackets integral: tubular
Buick	1,200	Side entrance	5	1,700	Angle steel	2—¾; 2—Half		Wood, artillery	Clincher, 30x3 1-2	Horizontal, amidships; 4 1-2x5; 800 rev	2—Opposed	22	Waterjackets attached: tubula
Jackson	1,125	Side entrance	5	1,700	Angle steel	4—Half-elliptic	Tubular	Wood, artillery	Optional, 30x3 1-2	Horizontal, amidships; 5x5; 600 rev	2—Opposed	16	Waterjackets integral: tubular
Elmore	950	Tonneau	4	1,300	Armored wood		Solid	Wood, artillery	3 1-2-inch & 3-inch	Two-cycle, amidships; 5x4 1-2; 1800 max	One	10	Waterjackets integral: disk rad
Ford	950	Tonneau runabout	4	1,250	Angle steel	4—Full-elliptic		Wood, artillery	Optional, 28x3	Horizontal, amidships; 4 1-4x4; 900 Rev	2—Opposed	10	Waterjackets integral; tubul
Glide	950	Side entrance	4	1,200	Armored wood	4—Elliptic	Tubular	Steel artillery	Clincher, 28x3 1-2	Horizontal, amidships; 5x6; 900 rev	One	8	Waterjackets castiron: attache
Autocar	900	Runabout	2	1,200	Armored wood	4—Half-elliptic	Tube & steel	Steel, artillery	Diamond, 28x3	Horizontal, crosswise; 3 3-4x4; 1000 rev	2—Opposed	10-12	Waterjackets integral; fin radi
Moline	900	Touring runabout	4	1,400	Angle steel	1—Half; 2—Full elliptic	Tubular	Wood, artillery	Optional, 3-inch & 3 1-2-inch	Horizontal, amidships; 4 1-2x4 1-2; 900 rev	2—Opposed	12	Waterjackets integral: tubular
Rambler	850	Delivery wagon	—	1,400	Angle steel	4—Full-elliptic	Tubular	Wood, artillery	Diamond or G & J., 28x3	Horizontal, amidships; 5x6; 1000 rev	One	7	Waterjackets integral; cellular
Oldsmobile	750	Touring runabout	2	——	Angle steel	2—Platform; 1—X	Tubular	Wood, artillery	Diamond, 28x3	Horizontal, amidships; 5x6	One	——	Waterjackets integral; cellular
Mitchell	750	Runabout	2	1,000	Pressed steel	2—Half; 2—Full	Tube & solid	Wood, artillery	Dunlop or Hartford, 28x3	Vertical, in front; 4x4½; 2000 max	2—Separate	9	Waterjackets integral: tubular
Rambler	750	Runabout	2	1,300	Angle steel	4—Full-elliptic	Tubular	Wood, artillery	Diamond or G. & J., 28x3	Horizontal, amidships; 5x6; 1000 rev	One	7	Waterjackets integral: cellular
Maxwell-Briscoe	700	Runabout	2	800	Armored wood	4—Half-elliptic		Wood, artillery	Optional	Horizontal, crosswise; 1000 rev	2—Opposed	——	Waterjackets integral; cellular
Oldsmobile	650	Runabout	2	1,200	Angle steel	2—Platform	Tubular	Wood, artillery	Diamond, 28x3	Horizontal, amidships; 5x6	One	7	Waterjackets integral: tubular
Northern	650	Runabout	2	1,100	Angle steel	2—Concord	Tubular	Wood, artillery	Optional, 28x3	Horizontal, amidships; 4 3-4x6; 1000 max	One	6¼	Waterjackets integral: tubular
Cameron	650	Runabout	2	1,450	Armored wood	2—Half; 2—Full		Wood, artillery	Clincher, 28x2 1-2	Vertical, in front; 3 5-8x3 3-4; 1500 max	3—Separate	——	Air-cooled
Rambler	650	Runabout	2	1,200	Angle steel	4—Full-elliptic	Tubular	Wood, artillery	Diamond or G. & J., 28x3	Horizontal, amidships; 5x6; 450 rev	One	7	Waterjackets integral: tubular
Jackson	650	Runabout	2	1,050	Angle steel	Platform	Tubular	Wood, artillery	Clincher, 28x3	Horizontal, amidships; 5x6; 1000 rev	One	7	Waterjackets integral: tubular
Covert	650	Runabout	2	750	Angle steel	4—Full-elliptic	Tubular	Wood, artillery	Clincher, 28x2 1-2	Vertical, in front; 4x4 1-4; 1200 rev	One	6½	Waterjackets integral: tubular
Pope-Tribune	——	Runabout	2	——	Angle steel	4—Half-elliptic	Tubular	Wood, artillery	Clincher, 30x3 1-2	Vertical, in front; 4 1-2x4 1-2	2—Separate	——	Waterjackets integral; radiator
Reo	650	Runabout	2	900	Angle steel	2—Half; 2—Full	Tubular	Wood, artillery	Clincher, 28x3	Horizontal, amidships	2—Opposed	8	Waterjackets integral; tubular

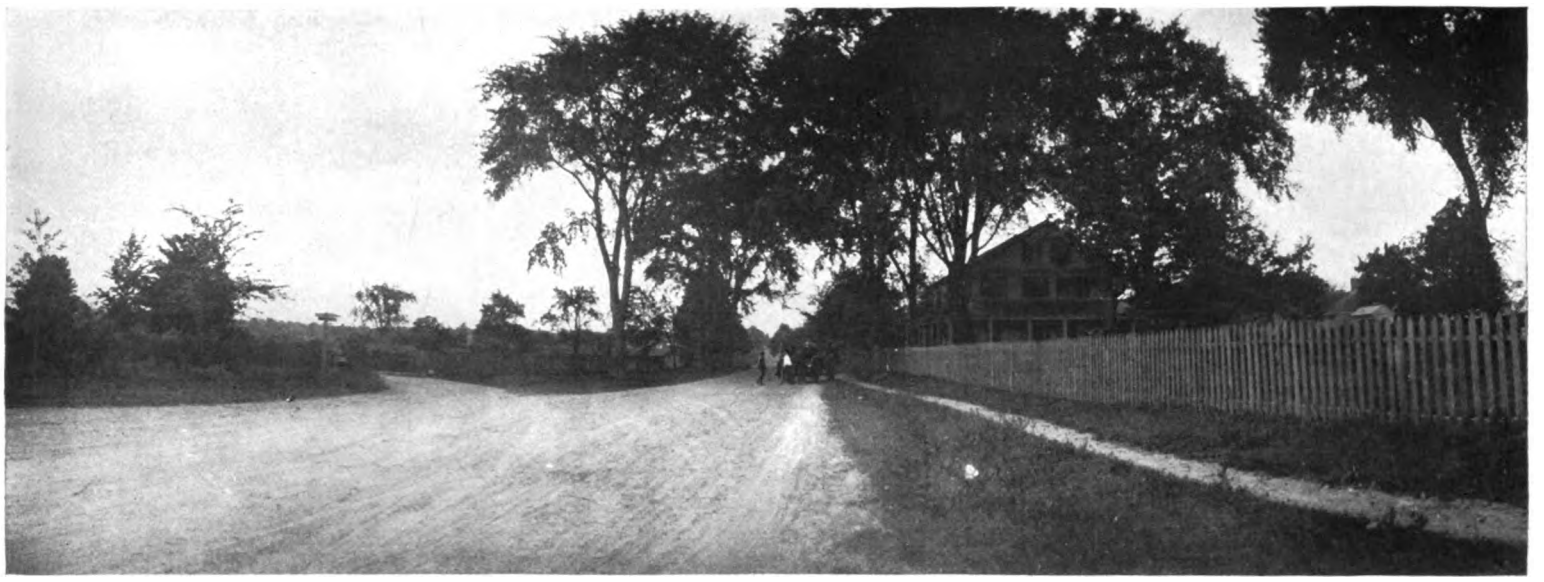
Specifications of Typic

NAME.	BODY.	PRICE.	WEIGHT.	PASSENGERS.	FRAME.	SPRINGS.	WHEELS.	TIRES.
Fischer	Terrace stage	$7,000	13,200 lbs.	40	Channel-steel	Platform and half-e	Wood, artillery	Solid rubber, 36x6 and 42x7½
Fischer	London omnibus	6,500	13,000 lbs.	40	Armored-wood	Platform and half-e	Wood, artillery	Solid rubber, 36x6 and 42x7
Columbia	Commercial wagon	——	10,000 lbs.	—	I-section	4—Half elliptic	Wood, artillery	Solid rubber, 36x7
Fischer	Five-ton truck	5,000	14,000 lbs.	—	Armored-wood	Platform and half-e	Wood, artillery	Solid rubber, 36x6 and 42x7½
Fischer	Express wagon	3,750	7,000 lbs.	—	Armored-wood	Platform and half-e	Wood, artillery	Solid rubber, 36x4½ and 42 4½
Columbia	Optional	——	5,040 lbs.	6		4—Full elliptic	Wood, artillery	Solid rubber, 30x3½ and 42 3½
Columbia	Commercial wagon	——	5,000 lbs.	—	I-section	Platform	Wood, artillery	Solid rubber, 36x3½
Studebaker	Victoria-phaeton	1,750	1,900 lbs.	2	Armored-wood	Half elliptic	Wood, artillery	Clincher, 30x3½
Synnestvedt	Stanhope	1,500	2,500 lbs.	2	Angle-steel	2 half; 2 full	Wood, artillery	Firestone, solid, 2 and 2½ in
National	Stanhope	1,500	——	2	Armored-wood	2 C; 2 elliptic	Wood, artillery	Diamond, 30x3 and 32x3½
Columbia	Runabout	——	1,360 lbs.	2	Armored-wood	4—Half elliptic	Wood, artillery	Clincher, 30x2½
Baker	Runabout	850	650 lbs.	2	Tubular-steel	3—Full elliptic	Tangent wire	28x2½

Specifications of Typi

NAME.	BODY.	PRICE.	WEIGHT.	PASSENGERS.	FRAME.	SPRINGS.	WHEELS.	TIRES.	ENGINE.	CYLINDERS.	HORSEPOWER.	VALVES.	BOILER.
Ormond	Touring Car	$3,000	2,500	7	Pressed steel	4—Half-elliptic	Wood, artillery	Goodrich, 36x4	Horizontal	4—Opposed	15	Poppet	Steel fire-tube
White	Touring Car	2,500	2,200	5	Armored wood	4—Half-elliptic	Wood, artillery	Optional	Vertical, in front	2—Compound	15	D-slide	Flash generator
Lane	Touring Car	2,250	2,200	5	Riveted steel	4—Half-elliptic	Wood, artillery	Optional, 32x4	Vertical, under seat	2—Compound	15	D-slide	
Grout	Touring Car	1,500	1,750	5	Armored wood	4—Half-elliptic	Wood, artillery	Optional, 30x3½	Horizontal, amidships	2—Integral		D-slide	Copper, wire-wound
Prescott	Runabout	800	1,200	4	Tubular steel	4—Full-elliptic	Wood, artillery	Goodrich, 28x3	Vertical, under seat	2—Integral	7½		Tonkin drop-plate
Stanley	Runabout	700		2		4—Full-elliptic	Tangent wire		Horizontal, under body	One			Copper fire-tube

* This refers to the maximum number of passengers the car will seat. † The numbers in this column refer to the stroke and bore of the cylinders and to ei



MOTORING IN LITTLE RHODY

By Percy A. Harden

While comparatively small in area Rhode Island is abundantly supplied with interesting resorts that appeal particularly to motorists, and no one living in this section of New England is ever at a loss to find a good destination for a delightful drive of almost any required duration. The State has a variety of roads, some of which are almost equal to those of France, while in the western part, which are always avoided by those seeking pleasure driving, may be found highways nearly as bad as the rutty, stony passways of Italy.

The beautiful Narragansett Bay extending up through nearly two-thirds the length of the State, the shores of the expansive waters are liberally dotted with pleasant summer resorts and pretty scenery.

With Providence at the head of the bay, where motor cars now seem as numerous as bicycles did a few years ago. From here, perhaps, the most popular route for a day's outing is toward the south, on the western side of Narragansett. Through the pretty suburbs of the city out into the country, passing through the big town of Warwick, with its many little manufacturing centers, we come to East Greenwich, an ideal little village, which abounds with handsome residences, the summer homes of Providence people, and there are many who reside here all the year round, going to and from the city, a distance of thirteen miles, in their machines. In unseasonable weather, the steam and trolley furnish adequate accommodations.

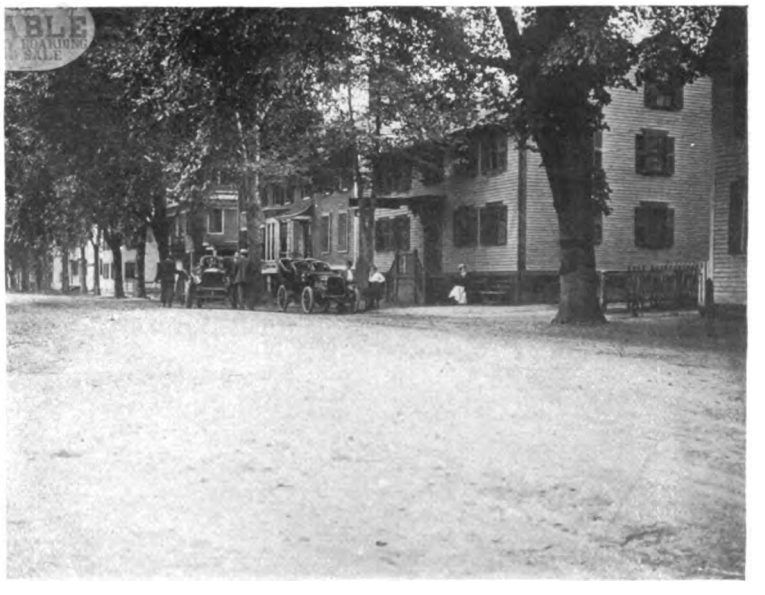


Continuing on the pretty road which skirts along Greenwich Bay, passing the old court house on the right, up and down a few slight elevations, we come to Wickford, another picturesque village situated at the head of Wickford Bay, which, in years long past, was a busy seaport. As early as 1800 Wickford was an important commercial point, numerous vessels were engaged in the fishing trade, and quite an extensive commerce was carried on with the West Indies and South America.

Around the village are many landmarks and reminders of other days. In passing through the place, one gets a pretty good idea of the historic surroundings. A mile farther down the road by the shore was located the summer home of the Narragansett chieftains, and here was executed the "Sachems' deed" to Roger Williams, of the "Land of Providence Plantations." Near this place tradition still points out the old dance ground where the Narragansett tribes assembled for their annual council and festivities. Three miles south of Wickford is the old site of St. Paul's Episcopal Church, erected in 1707 and removed to Wickford in 1800. In the old churchyard lie the remains of two of the early rectors. There is a wall around the grounds and a granite monu-



HIGHWAYS IN RHODE ISLAND EQUAL TO THOSE OF FRANCE



OLD WICKFORD, OF COMMERCIAL IMPORTANCE IN 1800

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WHERE THE SCHOOL, THE CHURCH, AND THE BURYING GROUND TELL LIFE'S STORY

ment erect to the memory of these worthy men. Journeying on to the Pier from Wickford one has the choice of two good routes of nearly equal distance. The first, a somewhat hilly road, which leads through Bellville, Allenton, over Tower Hills, was formerly the most popular route. Through this section in the colonial days the people were noted for the high degree of education maintained, there were many private schools, and the wealthy classes sent their boys away to distant academies. Tower Hill, a little hamlet off in the distance, has in recent years become quite a summer resort and patronized mostly by New Yorkers. The shore road having undergone extensive surface repairing, is now the more preferable. Six miles beyond Wickford is Saunderstown, the most important village between that point and Narragansett Pier. It is located on the bay, and the ferry, which crosses from here to Jamestown and thence to Newport, is the only direct route from the latter city to the Pier. Near the village of Saundersown stands the historic Casey mansion, the frame of which was brought over from England. The ancient dwelling is still in good repair and has never changed ownership except by inheritance. Along the shore road here, is a perfect panorama the equal of which cannot be surpassed in any part of the state. Looking across the bay in plain sight is Conanicut Island and Jamestown, Newport and its famous harbor, and the broad Atlantic on the south. Far over in the west looms up Bristol and surrounding country.

Narragansett Pier is now within a short distance, and going down the hill toward the noted resort, which is sometimes called the city of hotels, there is abundant indication of wealth on every hand in the elegant residences with their well-kept grounds. Off on the right on an elevation stands Canonchet, the home of Rhode Island's famous war Governor, William Sprague. It was here that Chief Justice Salmon P. Chase's beautiful daughter came as a bride. Her one sole ambition was to see her father ascend to the presidency. With millions at her command she sought to accomplish her ends. Scenes of gaiety, elaborate entertainments became general, and the noted politicians of the country were welcome guests. Her hopes, however, were never realized; the wealth dwindled away in a gigantic failure which shook the country. A divorce contest followed a few years later, and then the once famous Washington belle returned to the place of her early triumphs, afterward to die with a broken heart.

The great estate, which was about all that was saved when the Sprague millions were swept away, is still occupied by the governor, who married again and lives a retired life, respected by all his old comrades who went out with him in the dark days of '61. Around the pier are many notable residences, but none so famous as old Canonchet.

Motor cars are in evidence all around the great resort and the roadways are excellent. One can get around the Pier very quickly, for everything seems close at hand. To see a little more of the country, a pretty seven-mile ride can be taken over to Matunuck, passing through Wakefield, a flourishing village which has been a manufacturing place since 1815 and has many landmarks of early origin. Continuing along through the pretty tree-arched roads with the pleasant surroundings, we pass the summer home of the noted divine, Edward Everett Hale. Matunuck Beach looms in sight, with a number of cottages scattered around here and there. It is a good place for a rest and absolutely no opportunity for any excitement. There is an excellent beach, but scarcely any accommodations for motor cars.

Leaving the Pier we start back to Saunderstown, to take the ferry for Newport.

There is plenty of variety at Newport, activity on every hand, the narrow business thoroughfare of Thames street is almost always crowded. Bellevue avenue, lined with the homes of millionaires; splendid equipages, continually driving up and down; motor cars of every description, including foreign cars in goodly numbers, are among the sights at this noted place.

To return homeward we take the long trailing road up the island, passing in near proximity to the farms of Alfred and Reginald Vanderbilt, at Portsmouth, and then by the great government coaling station, the largest in the world.

We are now in Tiverton, and across the stone bridge which joins the mainland we speed on to Fall River, the great mill centre, where during the greater part of the summer months last year thousands of cotton spinners were out on a strike, and along the crowded streets and speeding by the big silent factories gives one a passing impression of the labor troubles.

Coming up toward Riverside, Narragansett Bay is always in sight; here, along the shore, are several big summer resorts which cater to the masses; there is a continual passing up and down the broad expanse of water pleasure craft, heavily laden passenger boats and steam yachts. On the side of the roads the trolley cars speed by, all crowded with humanity out for a few hours' enjoyment. Through the town of East Providence and across the long drawbridge over the Seekonk River we are in a few minutes back to our starting point. The speedometer says ninety-five miles, a grand day's outing with variety enough to suit almost anyone.

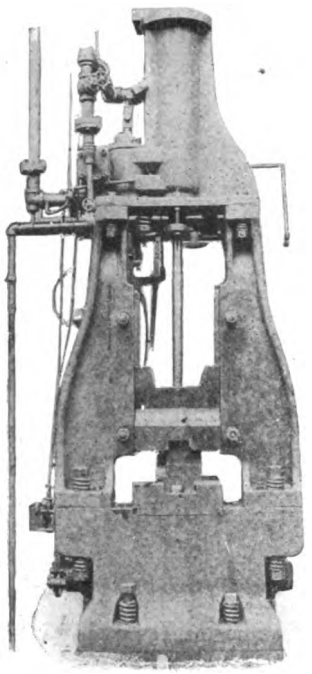


A SUMMER POPE-TOLEDO PARTY AT WICKFORD, WHERE MOTOR BOATING ALSO FINDS FAVOR

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The Making of a Motor Car

As Seen by a Trip Through a Great American Factory



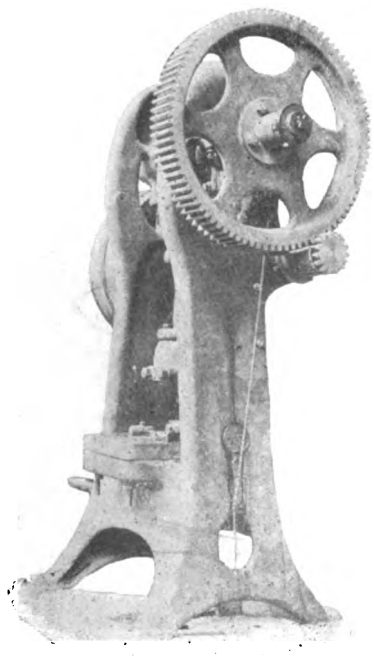
STEAM HAMMER, FOR MAKING DROP FORGINGS

From Chicago the Northwestern Railway takes the traveler through an exceedingly populous and thriving section of the West. The road passes through many beautiful suburban towns, all possessing that air of enterprise and solidity that bespeaks the push and energy which have made of the Middle Western States a land of progress and plenty.

On the way, the traveler is whirled rapidly by Zion City, the miniature kingdom of the self-appointed apostle Dowie. In plain view from the car window are the immense lace mill, the hotel over which Dowie exercises strict censorship in regard to drinking and smoking, and, in the distance, the tabernacle wherein Dowie preaches the faith to his devout and ever willing subjects.

In a short time the train slows up at Kenosha. Here, among the usual hackmen that ever congregate about railway stations, always is to be found a Rambler that is sent down from the factory to take callers or visitors back to it. Any one familiar with this custom need merely climb into a seat, and before he has ridden far along Main street, a large water tower, bearing the legend, "Thomas B. Jeffery & Co., Rambler Automobile," catches the eye. A swing around the next corner brings into view an immense, low-lying structure, and we are at the doors of the Executive Office building. Here are met the first evidences of the wonderful system that pervades the entire establishment. The first floor is devoted to the private offices of Mr. Jeffery, the bookkeeping department, etc. The second floor is the sales department.

Somewhat over a quarter of a century ago there was formed in the city of Chicago the Gormully & Jeffery Manufacturing Company, incorporated to make and sell bicycles. Commencing with the "ordinary"—the old high wheel—of which thousands were made and distributed all over the world, they followed the trend of the times and evolved the Rambler bicycle. For nearly a quarter of a century the Rambler was sold and ridden wherever bicycles were used, and it may be fairly claimed to have been the best and most popular wheel of its time.

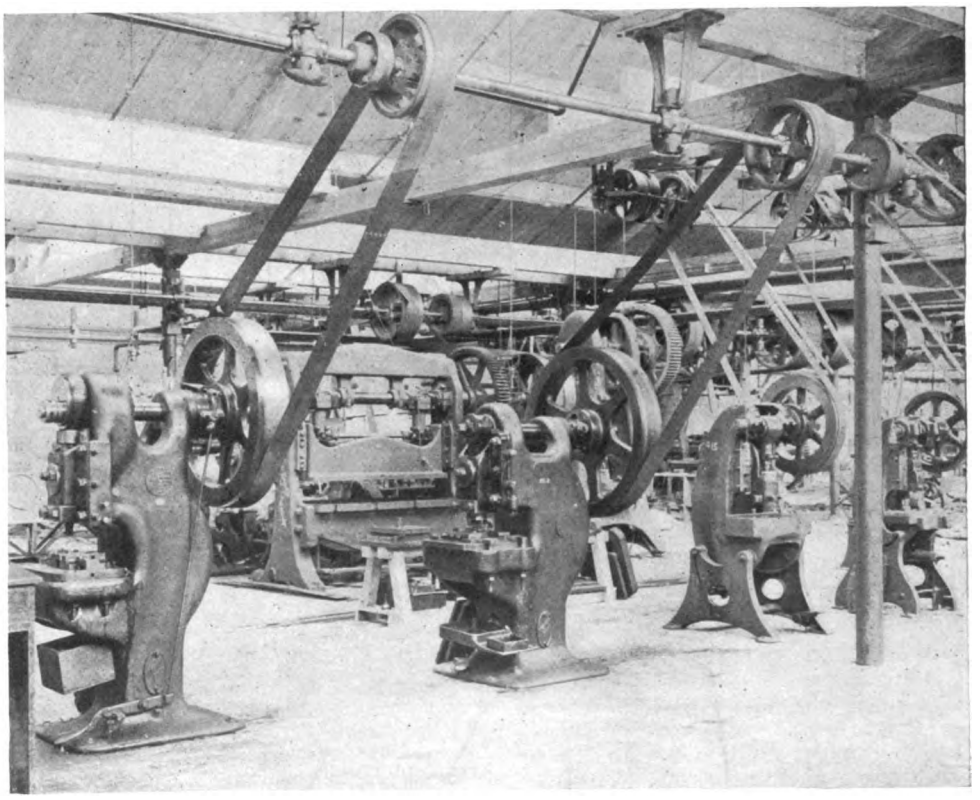


PRESSES FOR MAKING HEAVY STAMPED PARTS

In the late nineties, when consolidations were being effected in nearly every industry, the Gormully & Jeffery Co. was taken over by the American Bicycle Company, leaving its founders free to engage in other business. Mr. R. Phillip Gormully, however, died in 1900, and his partner, Mr. Thomas B. Jeffery, decided to settle down for a long period of honestly-earned rest. Before his plans were matured, the unrest that comes to every active worker in periods of inactivity came to Mr. Jeffery, and instad of extensive traveling the spirit of work again seized him.

At this time, the motor car was just being introduced into the United States, though for ten years Mr. Jeffery had been experimenting with the new conveyance, and had built more than one satisfactory car. Inoculated with the motor-car fever, Mr. Jeffery purchased the factory of the Sterling Bicycle Company, at Kenosha, Wis., complete with its splendid outfit of modern machinery. This was in 1900.

Mr. Jeffery and his sons, Charles T. and Harold W., immediately commenced designing a Rambler motor car. This first Rambler built at Kenosha had two vertical cylinders under the bonnet, a bevel-gear transmission, and a direct drive—all of which are features since adopted by most manufacturers. Use over the rough Wisconsin roads soon demonstrated that this was not the type of car to give the best service under severe touring conditions, and, after much consultation, the original design was dropped and work was commenced on the Rambler as it is now known to the public, fitted with horizontal engine and planetary transmission. Its popularity was so immediate that the first year's output, consisting of several hundred cars, was sold during the first three days of the first show at which the Rambler was exhibited.



PRESSES FOR MAKING THE SMALLER STAMPED SHEET-METAL PARTS

From that time on, the demand for Ramblers has increased steadily, and the factory has been added to year by year, until it now is the largest individual plant for manufacturing motor cars in this country. The original building of the Sterling factory is 700 feet by 100 feet, but, though in its day it was considered large, it now forms merely a portion of the machine shop of the great works of Thomas B. Jeffery & Co. Building after building has been erected until now nearly ten acres are roofed over, and entirely devoted to the construction of Rambler motor cars. The original ground of the plant covered seven and one-half acres, but it now is thirty-three and one-half acres, and includes a banked half-mile cinder testing track. There also is provided a trussed wooden incline, with grades of twenty, thirty, and forty per cent. on one side, and of thirty per cent. on the other. Over these every Rambler must climb before it is shipped. The factory proper has employed in the busy season during the past year over one thou-

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THE ORIGINAL FACTORY BUILDING AND THE OFFICES

sand men, but that number already is exceeded, and the mark is expected to be nearly two thousand in 1905.

Realizing that the demand of the American public is for a well-built car at a moderate price, Mr. Jeffery has adhered to the policy he found so successful in the bicycle days, and has improved construction while lowering its cost, by a most perfect system of quantity production.

A new business, it necessarily followed that much experimenting was necessary before the proper material for the various parts of a motor car could be determined upon. The wisdom and value of these experiments is best evidenced by the immunity from trouble of Rambler operators. Every piece of raw material is tested as to its fitness for its specific use. Every pouring of metal for cylinders, crank cases, etc., is analyzed, and, unless up to the standard, condemned. Every manufactured part is inspected, not only by the department inspector, but also by the general inspector, and it is almost impossible for any of the component parts of a Rambler to possess any visible blemish or secret defect.

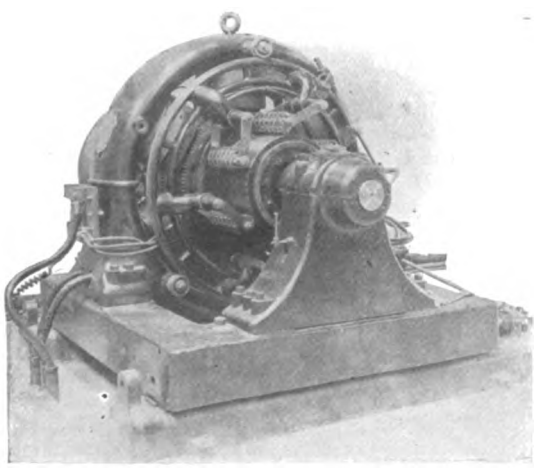
Always sold at less than other cars of presumably equal power, reliability, and appearance, the Rambler has been an enigma to its competitors and perhaps to the general public, an enigma that can be satisfactorily solved only by a visit to the factory. There the many machines, almost human-like in their action, and marvelous in their accuracy, produce parts by the thousand that are ordinarily bought by the hundred, and produce them not only cheaper, but better than they can be bought, because of the selection of the raw material with regard to its ultimate use.

Except for the wooden parts of the car, and the tires and the spark coil, practically every part of the Rambler is made in the Kenosha factory.

The arrangement of the factory is almost ideal. The raw material enters at the east end on a large unloading platform on a switch track of the Chicago-Northwestern Railwroad. That of much bulk remains in the rough stock room; that of small bulk is distributed to the various departments to which it belongs. Each of these departments has its own stock room and clerk, and is in turn regulated and checked by the main stock room and clerk.

From the second story of the Executive Building, the visitor has a splendid view of the main machine shop, a building 100 feet by 600 feet. Its interior forms a most impressive sight—a forest of belting, long lines of rapidly-revolving shafting, the whirr and hum of busy machinery and an army of men bending to their work without confusion, with no lost motion, and with no aimless shifting around. Everything moves as easily and as frictionless and with as much precision as do the oil-covered tools that slowly are forming the shapeless steel into beautifully finished motor car parts.

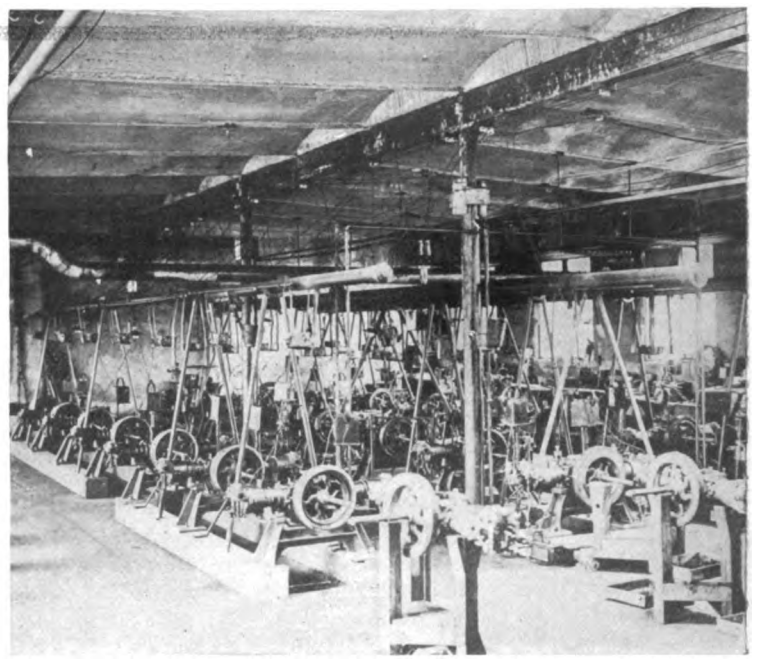
While it is not at first apparent, this immense floor space is subdivided into various departments, each one a shop in itself. The Jeffery system means that some one part of the Rambler automobile is manufactured complete in each of these sub-divisions. Every piece, down to the smallest detail, is made, sent to its special stock room and then assembled into the completed part. The axle department furnishes a fine example of this system. Here may be seen the machining of a heavy yoke, the fashioning of the split axle, the cutting of the steel gears for the differentials, and the thousand and one minor operations involved in this construction. No individual parts leave this department, the finished axles being furnished to the assembling shop, ready to hang to the springs.



THE DYNAMO THAT RUNS THE LIGHTS AND VARIOUS SMALL MOTORS

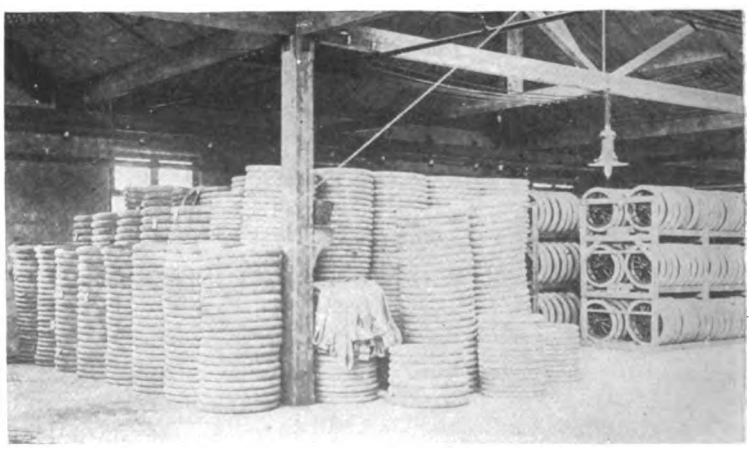
At one end of this particular factory building is the receiving room, the beginning of the system. A space of railroad track runs direct to this, and the consignments are unloaded direct from the cars and sent to the various departments in the plant to which they belong. Then, as one walks down the aisle, the curious sight presents itself of saws which cut up immense bars of steel, seemingly as easily as though it was the softest of wood. A circular saw is gnawing through a 4½-inch bar of tough steel without even a workman as an attendant. These sawed-off pieces constitute the blanks from which finally evolve perfect gears and small parts.

When the axle department, with its multitude of lathes, gear cutters, shapers, etc., is left behind, the visitor comes to the sheet-metal department, where are made such parts as the gasoline and water tanks, hoods, radiators, and such sheet metal parts as are used in motor-car con-



A PART OF THE ENGINE-TESTING ROOM

struction. Here are seen cleverly constructed shears that cut up sheet brass and steel as though they were so much paper. The radiators for types 1 and 2 Surrey Rambler each contain 824 tubes and an interesting device is the machine which converts a short piece of sheet metal into the required tube. This is done much more rapidly that it takes to tell about it, but speed is essential, since the necessary daily output of two machines is 24,000 tubes a day. The assembling of a radiator is a skill-demanding proceeding. The face or outside plates of the radiators contain 824 holes each, and when it is considered that each tube must be inserted and set separately, and that the whole structure when finished must be water tight, some idea of the patience and deft handling required can be gained.



THE WHEEL ROOM—WHERE TIRES ARE PLACED ON THE WHEELS READY FOR THE ASSEMBLERS

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THE TESTING INCLINE, AND THE LAST BUILDING ERECTED—THIS HAS A FALSE WALL TO ALLOW FOR EXTENSION OF THE PLANT

The frame department is here. A long strip of L-shaped steel is put into a press, a touch on a small lever sets in motion the immense gears, and the strip of steel is slowly pressed into shape. But this is only the initial process. A jig containing all the necessary rivet holes is now securely clamped to the frame. This insures absolute accuracy. The holes are drilled, the pressed-steel cross pieces and the necessary reinforcements are applied, and by means of red-hot rivets the frame is put together, forming an exceedingly substantial and strong structure. Particular pains always has been taken with the Jeffery frame, for the frame forms the foundation or groundwork for both mechanism and body. A mere superficial glance at the design shows at once the rigidity that always has been a marked feature in the Rambler construction.

Next comes the heavy brass department. Every piece of brass on a Rambler car is made right here in the factory, and the process can



GASOLINE TANKS READY FOR THE ASSEMBLING ROOM

be followed from where the molten metal leaves the spluttering crucible to where it falls from some skillfully-devised machine, the finished product—bright, clean, and accurate. Close by are the nickel-plating and polishing departments. Many rows of immense vats, containing the nickel solution, are kept busy in the plating department, and nearby can be seen the polishing room, with rapidly-revolving buffs and feathery, dust-distributing buffing wheels, which convert the dull surfaces that come from the baths into ones possessing mirror-like lustre.

Typifying the Jeffery system of making all their own parts, we next see electricians making the spark plugs that are so essential to exploding the gasoline mixture in the engine cylinders. These are made with the same care and patience that applies to the larger parts, not the least detail being slighted.

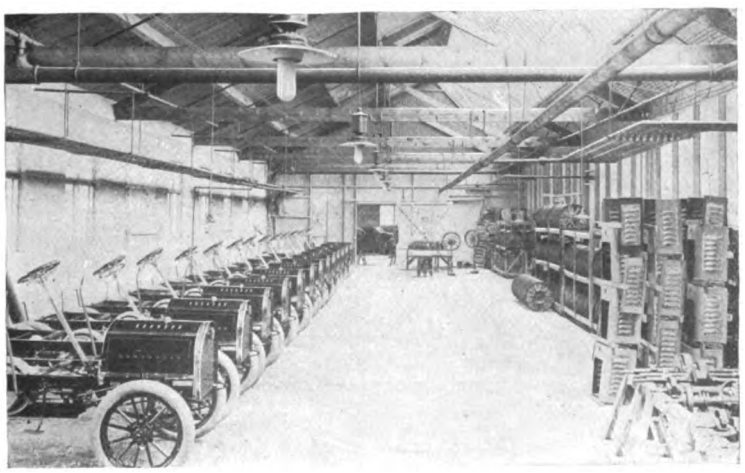
The stamping department now attracts. Here sheets of metal are stamped into pieces of a required size, and then fashioned into various forms, like so much tissue paper or tinfoil. As in every other department, the method of inspection employed is most impressive, even to a casual observer. Everything is tested accurately by gage, and the slightest variation means the scrap heap. Some wonderful presswork is done here, and done in a manner that makes one marvel at the ingenuity of the modern machine builder. For instance, here is a machine that takes a rod of Norway iron, cuts it to length and threads both ends. This is then heated and bent to shape, all this without disturbing the threads that were cut while the piece was cold, and this detail is simply a spring clip.

The iron foundry is next visited, where are cast cylinders and such iron parts as are made in the mold. In this the Jeffery Company is unique, for only one other motor-car plant in the country runs its own foundry. In the blacksmith shop are hand forged many pieces of the Rambler—the deftness and skill of the blacksmith here are found to conform to the same high standards that prevail throughout the plant.

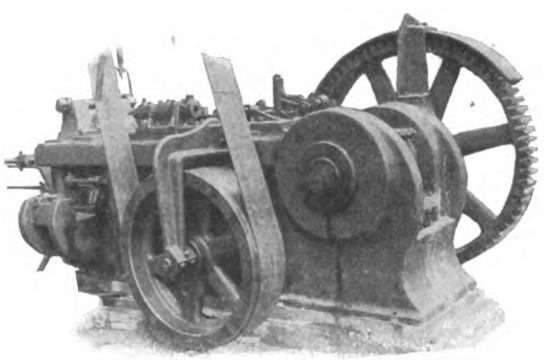
In another department we find row after row of automatic machines, each constructed and fitted to produce but one part, furnishing a key to the price solution. Small parts are standardized and bolts and nuts are used of uniform size wherever possible, a system reducing the number of parts in a motor car very materially and enabling them to be made much more economically than when of different sizes.

On our tour through the mechanical department we halt a moment to look at the engine room with its beautiful appointments. Here is seen the immense steam engine which furnishes the power to drive the machinery of this particular building. Here also is seen an immense blower by which the exhaust steam, after it leaves the engine, is utilized by forcing it through a series of radiators and heating devices used in winter to heat the factory. A rapidly-revolving dynamo in the same room furnishes the many lights that are available all through the plant even in the daytime.

From the engine room we pass into a most interesting department—where the motors are made. This department is possibly the best example of the extreme care which is exercised all through the plant. The cylinders and heads as they come from the foundry are tested for sand or blow-holes. They then are machined in tremendously large lathes and afterward examined again for possible defects. The use of jigs to facilitate accurate and close workmanship is a rule throughout the various machining processes, so that each part is absolutely interchangeable and the measurements are correct to within one ten-thousandth of an inch in every instance. All wearing surfaces, such as crank bearings, piston rings, crankshaft bearings, and, in fact, every surface that runs on another, is most accurately ground and fitted. The long life and easy running of the Rambler is largely to be attributed to this exceeding care with small details. The grinding machines are all specially built for their work, and they operate with an intelligence

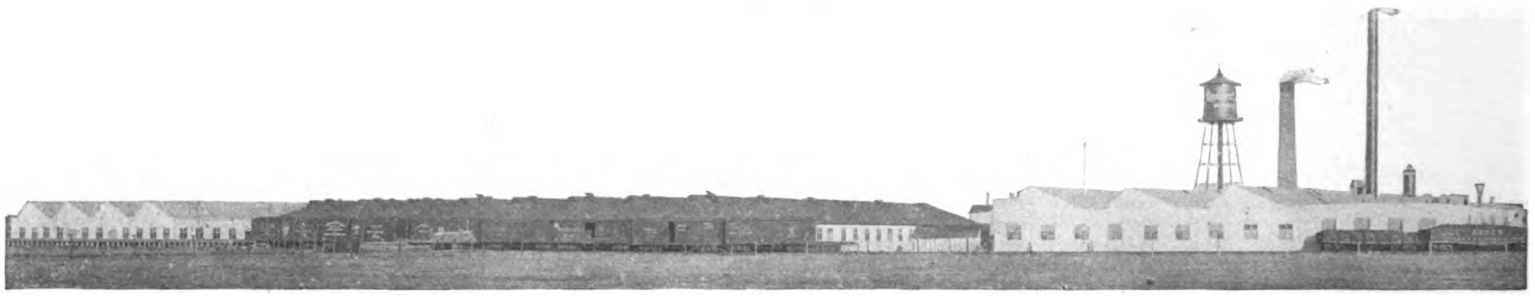


IN THE PAINT SHOP—PART OF A DAY'S OUTPUT



BOLT-HEADING MACHINE, FOR FORMING DIFFERENTIAL-GEAR BLANK ON DRIVING AXLE

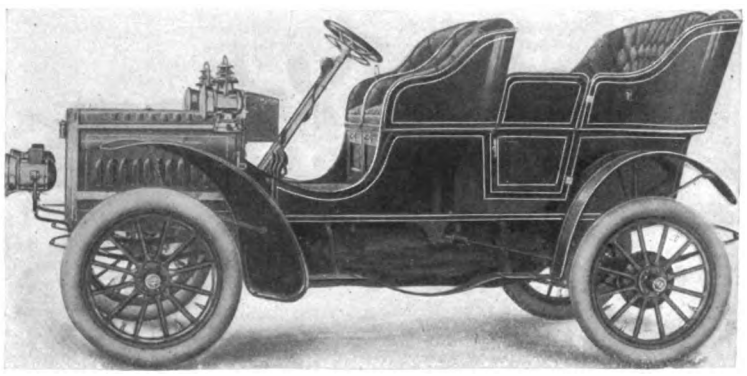
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THE ADDITIONS OF 1903-4, TO THE FACTORY; SHOWING, FROM LEFT TO RIGHT, BOILER ROOMS, DROP-FORGE SHOP, ASSEMBLING ROOM, AND BODY AND TESTING DEPARTMENTS. CARS AT THE LOADING PLATFORM ALSO SHOWN

that is almost human. Each piston and connecting rod is weighed and must come within a fraction of a given standard before being used. This compels a balance in the working of the motor that cannot be secured in any other way, and is one of the little details that have made the Rambler engines so free from vibration. The boring machines in this department, which bore the cylinders, also are specially constructed. The casting is held securely and the entire work is done at one operation. The cylinders finally are reamed out to a very accurate gauge, the reaming process taking out all tool marks and providing for the perfectly smooth glass-like finish, which is absolutely necessary for a good compression.

After the motor is assembled it is put on a limbering stand. This means that the fly-wheel of the motor is belted to a pulley and run for 14 hours with a mixture of oil and red rouge in the cylinders. This gradually polishes the piston rings and inside of the cylinders to a most accurate fit, giving a nicety of surface that adds much to the horsepower eventually derived. The motors then are run under their own power for a while in the testing room, and here the eyes and ears of experts quickly detect the slightest variation from the adopted Rambler standard. This is a most noisy and bad-smelling place. After the motors are tested, they are mounted in the car, on a stand facing immense tubes that blow cold air on the radiators. The quantity of the air is automatically adjusted by the speed at which the car is supposed to run—the higher the speed, the greater the draft of air—and in this way it is possible to duplicate exactly the conditions of running on the road. This test is continued for three hours at least and by that time it easily is possible to detect any slight flaw that may have arisen. This does not by any means finish the testing, for, when the car is completely assembled, it is given a road test under all sorts of conditions, and must secure the head tester's O. K. before it is finally sent to its destination, ultimately to give satisfaction to a pleased user.



THE PERFECTED PRODUCT—A 1905 PRODUCT

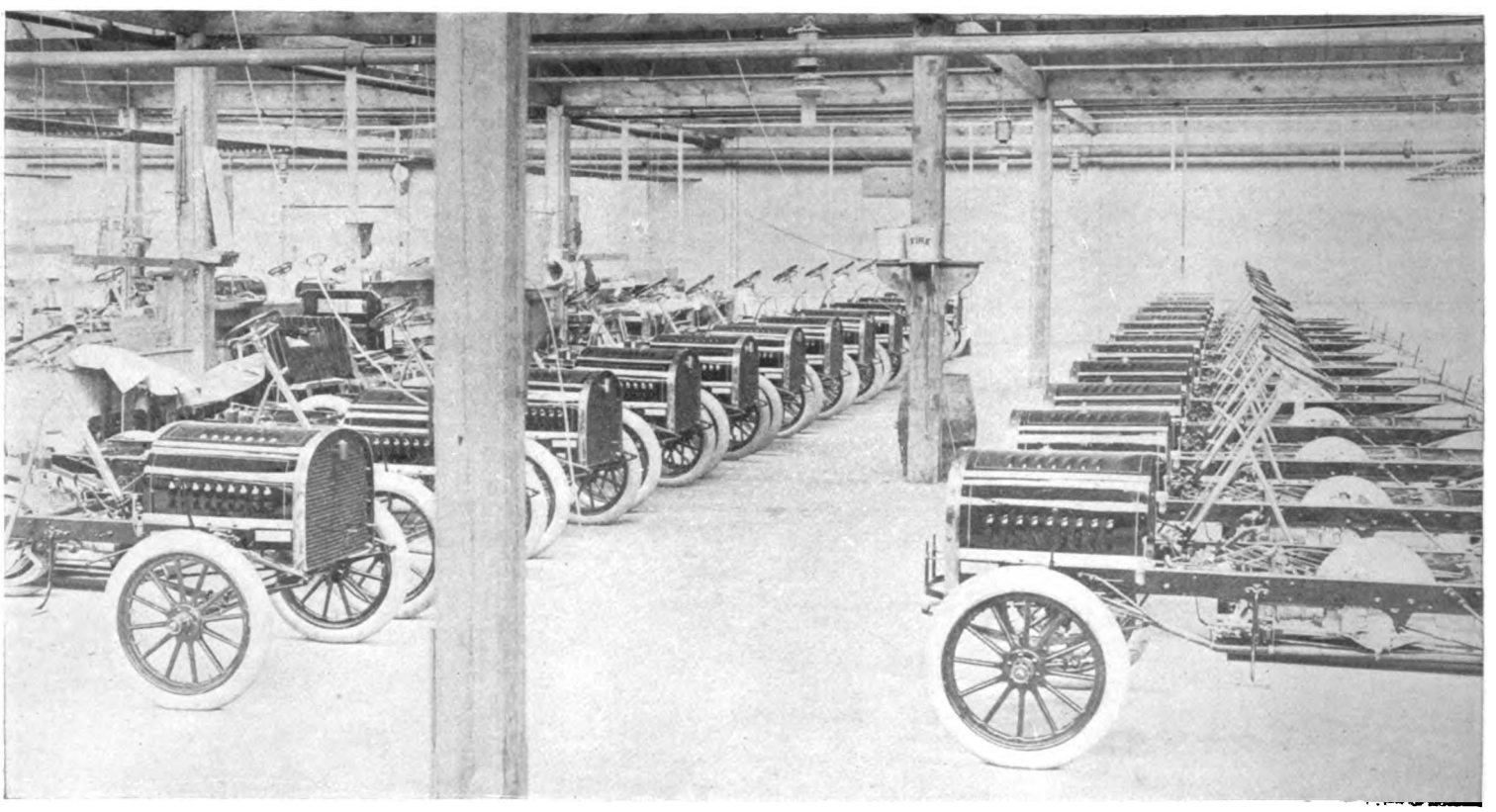
Thomas B. Jeffery & Co. is a copartnership, not a stock company; is without a Board of Directors and many-titled officers; is absolutely independent of any combination or trust, and, being without all these things and the customary large salaries paid to many and often useless officials, tribute paid for the privilege of belonging to combinations, further argument is perhaps unnecessary to demonstrate the reason for and the possibility of the low price.

With a branch store and warehouse at No. 145 Columbus Avenue, Boston, Mass., the New England States are as convenient as if near the factory. Another branch store at No. 242 No. Broad Street, and a warehouse at No. 1249-51 Twenty-seventh Street, Philadelphia, to serve the New Jersey, Eastern Pennsylvania, Maryland and Delaware trade, offers like advantage to that territory. At Chicago a retail branch only is operated, but that branch has the finest automobile salesroom in the city, and equipped with every facility for taking care of its customers and their carriages.

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The control is by one lever and the throttle, the former convenient to the operator on the right side, and the latter immediately beneath the steering wheel and operable with the left hand alone, so that in operating, one may always have one free hand for operating the lever.

Every possible and conceivable convenience of the operator, not only in regard to the actual operating, but for the minimizing of possible troubles incident thereto, has been carefully worked out, and where available the improvement has been applied. The new models have been used experimentally on the roads for many months, and are offered to prospective purchasers to-day without any apology for any particular.—[*Adv.*



PART OF THE ASSEMBLING ROOM. HERE THE CHASSES ARE RECEIVED FROM THE PAINT SHOP THE DASHBOARDS ARE FITTED, AND THE IGNITION EQUIPMENT IS INSTALLED

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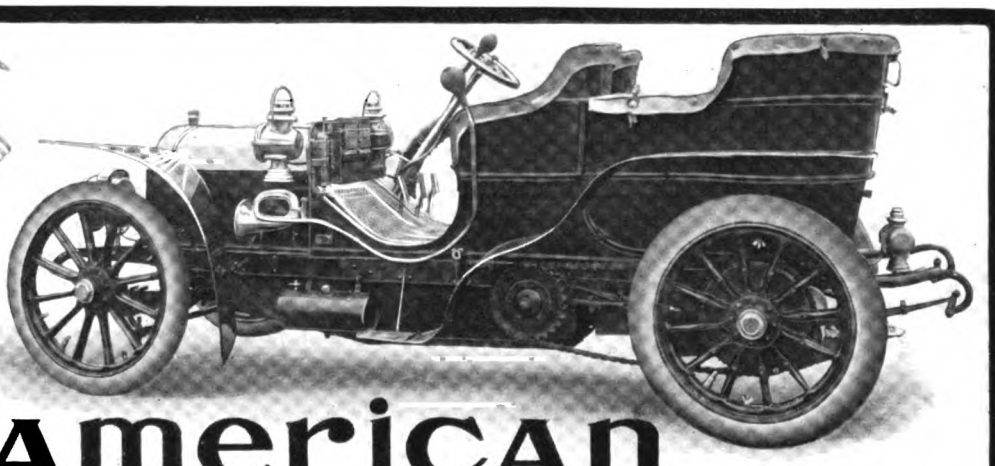
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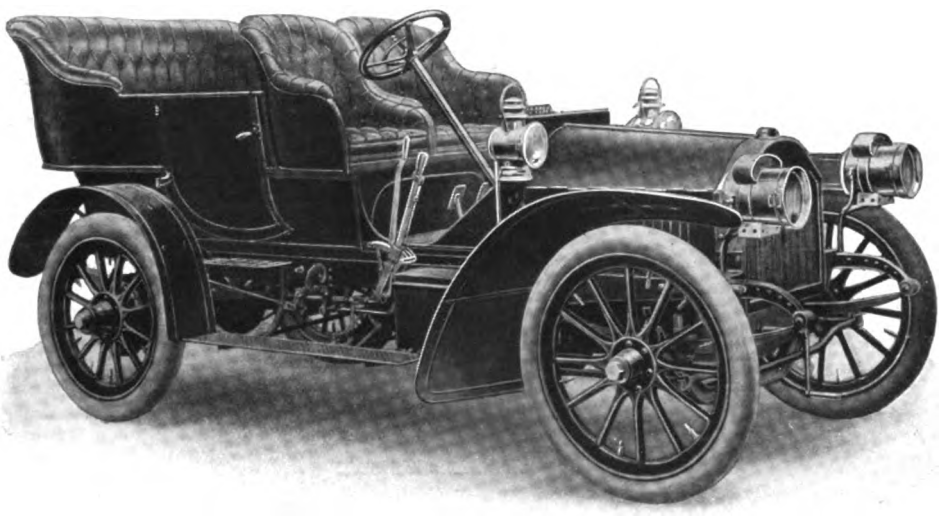
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is a refinement of the 1904 type. It is simpler in design and embodies features which appeal strongly to the experienced automobilist. The car throughout has been brought to the same state of standardization as other kinds of high-grade machinery. These factors, together with large output, have resulted in a lower cost of production.

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All we ask is a chance to explain to you our reasons for thinking that the Peerless is the best car that you can buy. Also, if you are not already familiar with the achievements of the Peerless, we should like to tell you about our successes in 1904.

Write to us for descriptive matter concerning the 1905 models

Peerless Motor Car Co.

CLEVELAND, OHIO.

Members Association Licensed Automobile Manufacturers.

The Wonderful Monster

(*Continued from page* 45.)

"You might have said of me, or of 'our day.'"

"So near at hand," she said. "The year has sped swiftly, Wilfred."

"Too swiftly. And now I have been foolish enough to give myself a rival at its end."

She started slightly. He wondered that her cheek paled and her eyes took a new look in their blue depths. Was it—fear?

"A rival," she repeated; "what—who do you mean, Wilfred?"

"Why, your Monster, as you call it. Didn't you declare this afternoon that you would certainly elope with him if he asked you?"

"Yes, so I did; it was great nonsense." She laughed nervously. "But, then, I'm always talking nonsense, more or less. I wonder you don't tire of it."

"It is very charming nonsense. I shall never tire of it—or you."

"I believe you mean what you say. I—I wish you didn't. I often wonder why men love us—we modern women. What have we? What are we? Our grandmothers—dear old dames—did certainly possess a share of those virtues and graces men call 'womanly,' but we of this twentieth century show a poor record. A large amount of the defects of our qualities; very little of the virtues."

"This is rank treason: I will not hear another word."

"Good night, then."

Yet it might have been some half-hour later that he heard her speak again.

"Wilfred, you are sure it was my car came up the drive to-night?"

"Sure? Of course I'm sure. For goodness' sake, child, go to sleep, and give up thinking of that wretched machine. I declare I'll smash it up if it's going to engross your every thought like this."

She laughed an odd, toneless laugh that had no ring of mirth. "I should get another," she said. "It would be a case of the man out of whom one devil was cast, so that seven worse might enter in!"

The chauffeur, Pierre Cassagnac, was a favored individual at Beeston Court. He had come from Paris with the very highest credentials. He knew everything about an automobile that could be known—the meaning and mechanism of that most wondrous creation of modern science; its construction, its power, its danger. When Sir Wilfred had chosen a motor car as a gift for his wife he most naturally selected the most skilful and experienced driver he could find in Paris.

The Comete de Britomart in parting with this valuable "artist" had given as a reason that Pierre was too good to be treated as a servant, and yet not quite up to the mark of "gentleman." "In fact he is somewhat of a mystery," he explained. "Well educated—intelligent, clever at the devil—I'm sure there's good blood in his veins. But he's dumb on that point, and then he is what you call ultra-sensitive. The accident that deformed him has left him morbid and with a dislike for his fellows. He must have a room apart. He will not mix with those in the servants' hall. He has the tastes and refinements of an educated man, and what he does not know about motoring—is not worth knowing."

Sir Wilfred interviewed the strange chauffeur.

He found him a short, very slight man, with a sensitive, delicate face; his eyes were intensely dark and had a curious penetrating effect when he looked attentively at any person or object.

He spoke French and Italian equally well, and had a fair mastery of the English tongue. The very slight stoop or roundness about his shoulders to which the Count had alluded as "deformity" was scarcely noticeable except when he was driving. Then he had a trick of hunching himself up. His head seemed to sink between those round shoulders till his eyes were on a level with them. His eyes would flash like live coals; his mouth would quiver. The man was for the time transformed, a crea-

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ture whose power and force became almost demoniacal.

Sir Wilfrid had never seen him under stress of excitement such as this. But his wife had—often. What was worse, she felt she shared it, and gloried in the feeling! True, it was only temporary. It lasted but for the lesson or the drive. Yet while it did last her whole being was but a sensation. Time—space—friendship—love—fear—all were obliterated. She was as a spirit, of which this flying, raging, ruthless force was the embodiment.

For the time being it was absolute madness; an intoxicating delirium, a wild frenzy.

She had never quite asknowledged it to herself until Gerald Morten had chosen to bring her face to face with her own presentment in that sketch. Then she knew that some one besides herself had recognized a possibility that that self had begun to dread.

In those mad flying hours, when day and night or storm or sun became alike indifferent—she and Pierre Cassagnac had felt to the core and depth of sentient being their mutual daring, and their mutual danger!

There had been of late a look in his eyes and a laugh on his lips when the throbbing monster bore them along over white frozen roads—around sharp curves, through night's darkness—into the daylight's glory.

"You and I," those wild eyes seemed to say—"only you and I, and all else blind and deaf; and before us—the next moment perchance—Death!" She wondered had she heard him say those words or only fancied them. Wondered if in giving him the sympathy his sad story (of ruined fortune and broken health) deserved, she had also wakened in him that heart-hunger he had spoken of as his life's only legacy.

For once, in a moment of mad danger, his hand had clasped hers, his eyes burned down to her soul's depths, his voice—a broken sigh—had come to her ears amidst the sobbing strife of the elements. "Ma belle—ma belle! La vie est cruelle! Vive la mort!"

But the danger had passed. The fire died out. Peace and calm and common sense reasserted themselves. Alone, again, in her luxurious, charming boudoir, she had laughed over the memory as a fancy, grotesque and half imaginary.

But Pierre Cassagnac had not laughed, and Pierre Cassagnac knew that the scene had not been imaginary.

It was of that hour and that scene he was thinking this very night.

He was crouching over the fire—a grotesque, shapeless figure now that his padded coat and supporting belt were removed. His long, dark hair fell about his face; that strong, pale face, clear cut, delicate, with the sensitive lips of a woman and the firm, masterful eyes of a man. A man whose heart was bitter against his sex for very shame of what he lacked of manhood's strength and glory. For very envy of what they possessed and he never could claim.

The night was very cold; the hour late. But sensation and time were alike submerged in the depths of his brooding fancies.

It is a sad fate for a human soul to stand alone in the shadow of death, but it is a sadder one to live in loneliness, apart from all the joys and triumphs of living life. To see no ray of light in the darkness, nor gleam of hope in the eyes that greet, or the lips that speak. Brooding over the cruelties that life sometimes seems to glory in heaping on our helplessness is a dangerous pastime. It sows the seeds of bitterness—or morbidity—often of crime. The rage against an injustice we cannot reach, and cannot move, works like madness in the brain, and for the time is madness. It poisons slowly but surely all the sweeter springs of life; creeps through the throbbing veins, stirs in the fettered pulses, swells, upward, ever upward, to the tortured brain, until finally the flood-gates are forced, and all of sense or reason are swept away from their foothold forever!

Often had Pierre Cassagnac acknowledged that but for the tense self-restraint he had taught himself he could have played villain or murderer at will. There was even a subtle

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joy in painting the scenes, and living out the situations of a crime. It was to the full as interesting and exciting as anything the stage could show or literature breathe in its most fervid words. This joy Pierre Cassagnac had begun to realize. He played with the details of the drama act by act, till finally he would fling the reins of self-restraint to the winds and riot in a frenzied rush of ungovernable horrors. At such a time he was veritably mad, as mad as any chained inmate of Bedlam! But none guessed it save himself. He recognized a danger waiting for him in the by-ways of everyday existence. He knew that did he, for one moment, lift the veil from his face, man and woman would alike shrink from him in horror. Even she, who had so pitied him, who had been kinder, gentler, more sympathetic than any human creature he had ever met! For in Dot's heart there lived one true instinct of womanhood that neither her life, nor her set, nor her own light, careless assumption of indifference had ever quite destroyed. It was the fashion of the day to appear absolutely unfeeling—so she appeared it. It was the fashion of the day to treat life as an irresponsible, joyous, self-satisfying thing, and so she affected to treat it. Sheltered by love and wealth and adoring care, no dark side of humanity's woes had, as yet, shown itself. To be gay, brilliant, beautifully gowned, up-to-date in all matters of sport; proficient at bridge and billiards—never to seem bored or tired—that was what society demanded of women, and that demand she had obeyed without much difficulty. To the gay innocence of youth all is possible. And when love came to her, it came rosily and without cloud or care. If at times she reproached herself with regard to Gerald Morten, she salved her conscience by assuring it she had never really encouraged him. Also that she had always made him stop short of an actual declaration. He must have seen she was absolutely without sentiment in the matter; and if stupid people chose to think otherwise, it was because they were stupid.

But that little hidden vein of real kindliness in her heart had been worked upon in a quite unexpected manner. Her quick eye and rapid judgment had soon convinced her that Pierre Cassagnac was certainly not a common man—not even a middle-class one. Deference, courtesy, delicacy—a firmness that controlled, and a quiet strength that mastered her—all these were surprises afforded by her Monster's attendant, and her own instructor. All these had been given to Pierre Cassagnac, a personality and a meaning quite apart from his actual position in her household. The strangest part about it all was her innate dislike of the man, and her absolute inability to tell any third person, even Sir Wilfred, about him or her theories respecting him. An intangible web, fine as gossamer yet strong as steel, was spun about her freedom in this one instance. When with Pierre Cassagnac she knew herself as something so different from the women her world knew, and her husband knew, that she was afraid of the knowledge. Afraid because of that strain of the bad, mad, wild, untamed and untamable primitive force that lies still at the core of humanity—ultra-civilized as it is. The force that springs hydra-headed to the front in some strange moment, for which we are unprepared. The force that is the old primeval satyr, long locked away, yet never wholly prisoned, suddenly seizing us with hoof and horns, and twisting and bruising out of our pretences the real man or woman we deny.

That moment is nature's vindication. That moment it is that thrusts before our amazed eyes details of shame, crime, horror; the secret history of lives we believed we knew—of hearts whose every throb we, in our blind vanity, dreamed ours and only ours.

What the world has recorded by means of its press, its prisons, its living witnesses, is yet not half of what the world knows, nor a millionth part of what it fears.

The huge, unwieldy, unprincipled, savage force lurking behind its human blandness, is a force that has yet to be reckoned with!

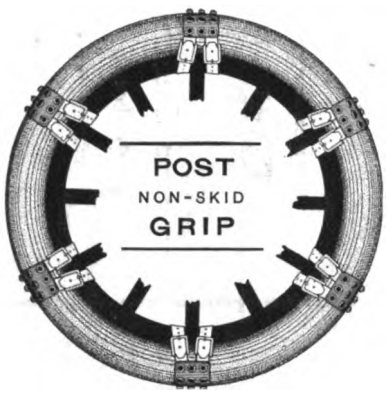
Man has civilized his fellow-man, has tamed

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Consists of a steel shoe, with steel teeth, that give traction and prevent skidding in any going, the whole being held on the tire by leather straps that buckle around the rim, making it easy to put on or take off. Six go on each rear wheel, and the full set of 12 packs in a neat, strong carrying box that takes up but half a foot of room in the kit.

Outwears rope or chains and PROTECTS instead of injuring the tire, besides which there's no danger of their breaking and winding up in the mechanism of the car (like rope or chain). Neither do they have to be worn in fair weather to destroy resiliency and eat up extra power (like the permanent bands), but the POST GRIPS are always handy in the kit and can be put on anywhere in a few minutes. When the road is slippery from snow, ice, mud, or sand, the car moves the INSTANT the power is applied, and you come home full speed without any slipping or skidding.

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and curbed the brute creation, has set his puny force against the elements, has flung down the gauntlet of science before the Creator of the Universe; has laughed to scorn the simple, homely, tender things that mean all life's grace and beauty. He has done all this, and more, and yet of himself he knows nothing; neither whence he came nor whither he goes, nor why he is brute and God—devil and angel combined, and holds the procreative power of other brutes and other devils within himself.

Then a creature such as Pierre Cassagnac, a defaced page in the great book of humanity, springs into existence, and with one hand strikes the keynote of tragedy, and the other clutches the throat of the smiling mockery that calls itself "Culture."

Culture had little to do with the brooding, sullen entity sitting over that fire on this December night; re-living his past; shunning thought of the future.

For him life had become the present moment only. A tumult—a wild hope—a wilder joy—then, Despair.

These made the daily programme of his duties. These filled the blank spaces of his mind. These caught and held him chained to the dangers he loved and the perils he daily faced. These had given to his broken words and self-revelations an eloquence and passion that had enslaved his listener. These had painted his portrait for her eyes as martyr and hero both. These had rendered Pierre Cassagnac that mysterious obsessing force against which she vainly strove.

Softly, slowly, the gray ashes dropped from the grate. Softly, slowly, the glow died out of the dull-burning coal. The watching eyes saw them turn from red to brown, from brown to gray; and all the chill and desolation of his life re-lived itself in those cold changes.

Silently the night departed without an echoing footstep to betray her going. The chilly winter dawn came up out of the east like a sudden memory of duty, and, like duty when enforced from grudging heart, it showed no light or warmth.

Shivering and pale, the watcher by the fire raised his head, drew his hunched form upright, gazed with blank, dull eyes at the silent walls, the uncurtained window. Then like one in a dream he rose and crossed to his sleeping room beyond and threw himself in utter exhaustion on the bed.

Sleep, more merciful than life, took him in her arms, caring naught that he was unsightly—unloved—and in thought and desire a criminal; the one kind, gentle friend humanity has cause to bless, she came to him as mother to child, and for a few hours gave him her one best gift—oblivion.

* * * * * * * *

Morning saw the house party assembled in the breakfast-room. The sun was up now; the sky brightly blue and the frost held. Whether to shoot or skate was a subject for individual choice. Lady Beeston was in brilliant spirits, her mood of the past night was gone. A mood, after all, is only to the feminine temperament what a cloud is to the sky—and is often as transient.

"No, Wilfred, you can't have Gerald," she was saying. "Muriel and I require him to fix skates, and show us outside edges and things. If the frost continues we shall have a torchlight dance. I thought of it while I was dressing. Most of my brilliant inspirations come when I am dressing, or my hair is being done. It's quite true. You know Mrs. Ardyce—Julia Ardyce, who writes those clever books—she told me that her best epigrams flock into her head when she's undressing at night. She keeps a notebook on her toilet table with a pencil attached, and jots them down for fear she should forget. Sometimes in the morning she's quite surprised to find what a stock of material she has for the day's work. I always think it's so wonderful to be able to write a book, or paint a picture, or play the violin. I suppose it's because I can't do any of them. I can only talk."

She turned to Bertie Farquarharson. "How silent you are! You've eaten three kidneys—do you know? If you take a fourth you'll have

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Cross-section of Morgan & Wright Clincher Tire for Automobiles

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MODEL D

Motor—four cylinders 20 H. P.
Sliding Gear speed change
Three forward speeds and reverse
Bevel Gear transmission to divided rear axle.

Wheel Base, Model D, 80 inches
" F, 97 "
Tires, Model D, 30 x 3½
" F, 32 x 3½
Weight, Model D, 1750
" F, 1825

Side or rear entrance tonneau
Seats four or five passengers

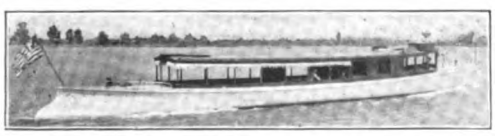
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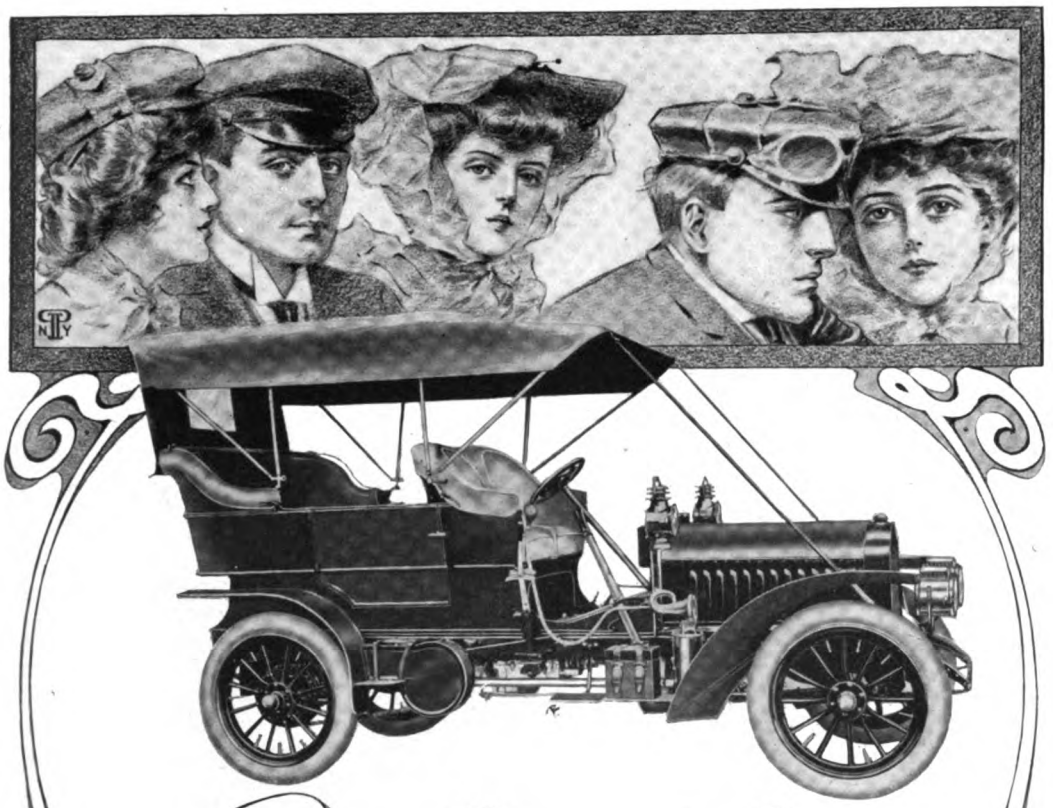


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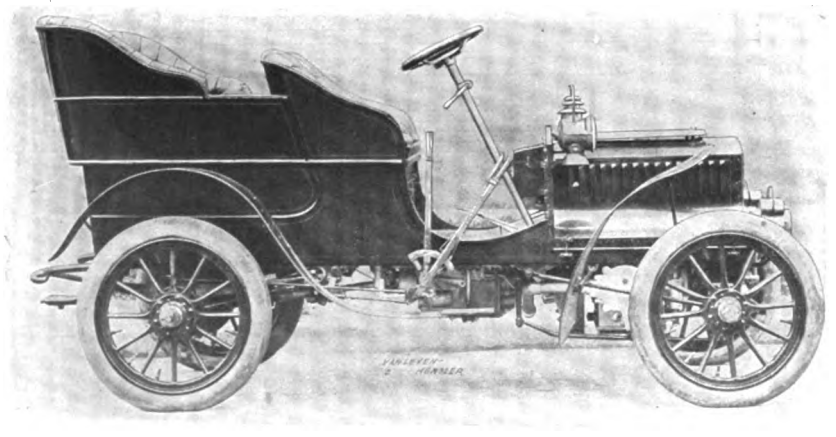
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indigestion and won't be able to shoot straight. Tell me—what sort of story is this of Wilfred's about my motor car last night? It sounded quite ghostly and mysterious when he told it. You both saw it, he said, and it was rushing along the drive by itself?"

"Yes," said Farquaharson. "So far as we could see no driver was visible."

"Were the lamps lit?"

"Yes; full blaze. We could see the line of the seat; in fact, the whole car."

"And it was empty?"

He nodded.

"Of course," she said, "it's ridiculous to suppose a car could drive itself. I think Wilfred and you are anticipating Christmas, and getting up an atmosphere of ghostliness to suit the season. Not that the Hall isn't old enough for legends, or hasn't had them in its day. But the wildest imagination that ever tackled the Headless Coach, or the Horseless Hearse, might stop short at the Driverless Motor! However, I'll ask Pierre about it."

She glanced down the table. Every one was chatting, or laughing, or eating. The scene was gay and animated. The now radiant morning light poured into the room. The fire crackled in the great, wide, old-fashioned fireplace. Two or three dogs lay stretched before it with the security of favored pets. Those fresh-looking, well-groomed Englishmen and Englishwomen had certainly nothing occult or uncanny about them. Yet, even as Dot looked at them, she was conscious of a sensation of faintness—of a mist that floated between herself and the forms and faces beyond. Darkness swooped down upon her like a huge bird with outstretched wings. She could hear their rustling. She could feel their darkness. A sick terror seized and shook her; a cry escaped her lips. Then, as swiftly as the sensation had come, so swiftly it passed. She was leaning back in her chair looking up in her husband's alarmed face. He was holding her hands—her name was on his white lips.

"Dot! For God's sake, what's the matter?"

"The matter?" She gazed vaguely to right and left. Was it an hour—a moment—a second since she had seen those faces, and then—not seen them?

"I don't know," she said. "What was it? What did I do? Why, you look quite frightened, Wilfred. I'm all right. Did I faint?"

"I was looking at you," he said, "and suddenly your face grew ghastly white, and you fell back in your chair."

"How foolish!" she said, in the old, bright way, with the old, bright laugh. "But I'm all right now. Do go and sit down. I suppose I was faint."

"But why should you get faint? Don't you feel well?"

"Perfectly. Don't make any more fuss, there's a good boy. Go and sit down, do."

She laughed at the wondering faces, the anxious eyes. She made light of that odd sensation. But she could not quite rid her own mind of a certain uneasiness. She had never fainted in her life, she was strong and healthy. She had nerves of steel—what could have made her feel so strange? To hide that uneasiness she threw herself once more into the light talk, the gay badinage of which she was acknowledged leader. She reminded them of the Xmas Eve plans. She exhorted them to ingenuity in the thinking out their Xmas gifts, and reminded them that the village emporium would be open to a specially late hour this special night if they needed to make special purchases.

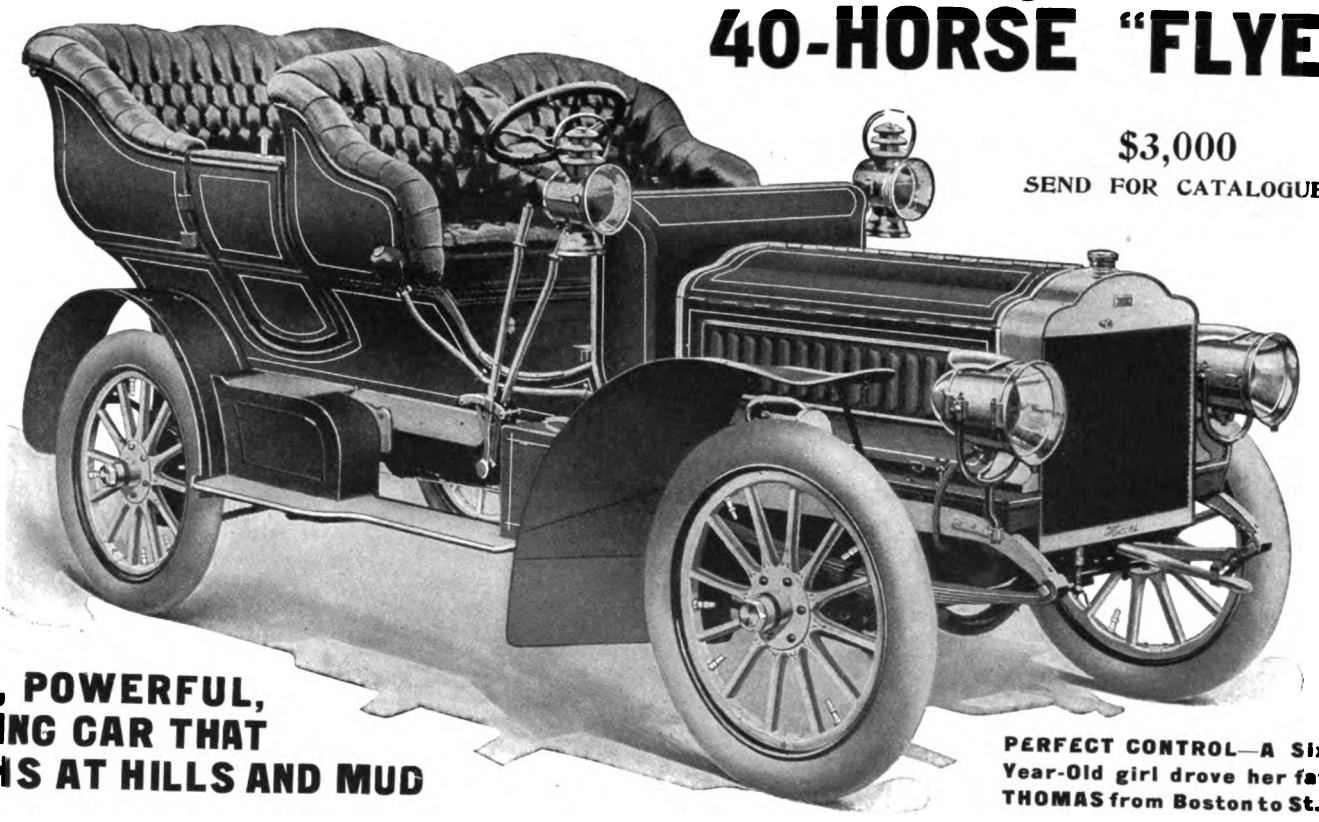
Her momentary indisposition was soon forgotten, except by her husband. His adoration had never yet experienced the shock that warns all mortals of their mortality—had never trenched on that border line of terror which shows to human love its helplessness.

A hundred fancies beset and pursued him. Was Dot going to be ill? Had she a weak heart? Was she overtaxing her strength? Were her brilliance and restlessness only a surface show of physical energy? And so on.

Yet her momentary weakness had endeared her a thousandfold. Perhaps because of its femininity. Perhaps because of the novel fear it had awakened in his heart.

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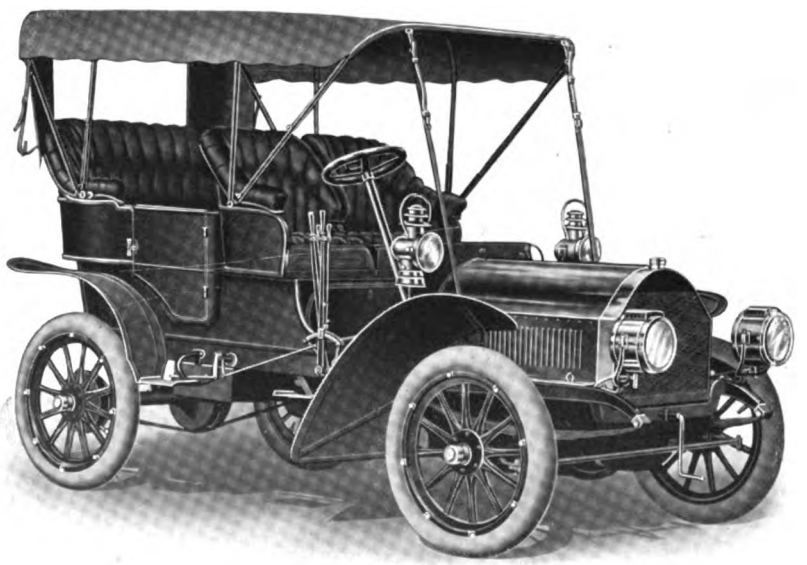
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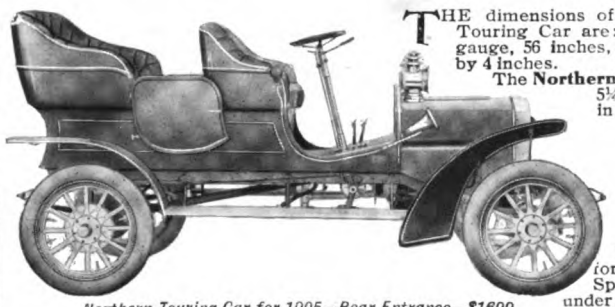
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Northern
Automobiles



Northern Touring Car for 1905—Rear Entrance—$1600
Northern Touring Car for 1905—Side Entrance—$1700

THE dimensions of the **Northern** 5-passenger Touring Car are: Wheel base, 100 inches, gauge, 56 inches, wheels, 30 inches, tires, 30 by 4 inches.

The **Northern's** motor is pair of opposed 5¼x5¼ inch cylinders set far in front, crosswise of chassis, making a strong and rigid frame. No vibration or strain on passengers or machine.

Engine has silent exhaust. Valve stems have cushions which muffle all sound.

Planetary speed change, two forward speeds and a reverse. Speed can be changed when under full headway without danger to gear or other parts.

Power is transmitted direct to a bevel-geared divided rear axle. The propulsion goes from driving wheel to chassis frame through the rear springs, relieving propeller from thrust and freeing drive from side and end stresses.

The **Northern** is peculiarly adapted to American road conditions—mechanism cannot be twisted out of alignment no matter how rough the way.

The **Northern** fly-wheel and fan is a uniquely good feature, not only keeps a perfect cooling draft upon the radiators but maintains a constant air current all around the engine and under the body of the vehicle, so that passengers in the tonneau do not catch the dust, no matter which way the wind blows.

Seats are roomy, handsomely upholstered in black leather. The **Northern** has the new side entrance for rear seat.

THE **Northern Runabout** has wheel base, 67 inches, gauge, 56 inches, wheels, 28 inches, tires, 28 by 3 inches.

Front axle has ball bearings rear axle has roller bearings. The latter are self-lubricating—require no adjustment.

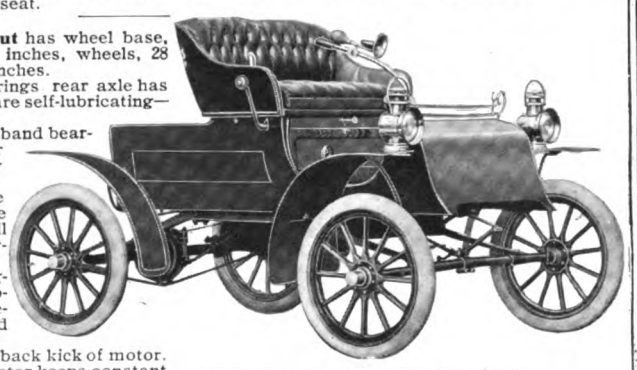
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Northern Runabout for 1905, Price $650

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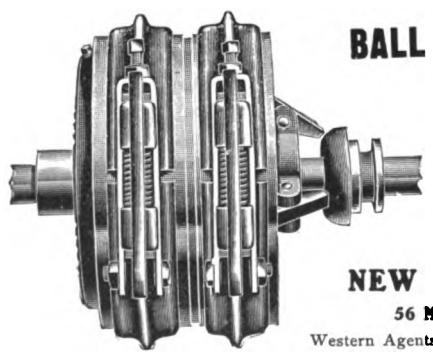
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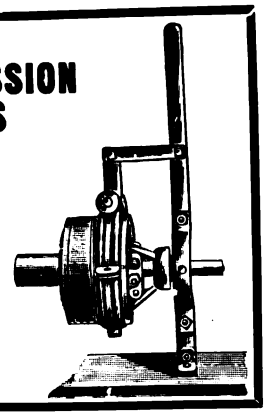
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He had followed her to her dressing-room before leaving with the guns. It was to implore her not to use her car that day.

"But why?" she asked, in natural surprise.

"I can't give a reason, only I'm sure it wouldn't be good for you. It is too exciting. You take it up too ardently and rushing at express speed through this bitter cold air is not healthy, nor wise. Come, dearest, to please me, promise."

She laughed. "Foolish old boy! Why did you ever give me my Wonderful Monster? You're like the child who set fire to a haystack to 'see what would happen,' and then fled in terror from the blaze for which he was responsible. And why to-day am I to promise? There's to-morrow, and to-morrow, and next week, next month, next year! Why should to-day hold more danger than any other day?"

"I cannot say," he answered, slowly, "perhaps it is a presentiment."

She made a little gesture of impatience. "Wilfred, what nonsense! As if presentiments ever meant anything. As if they were ever the result of anything more serious than a fit of indigestion. Go and walk, dear boy! A tramp over frozen turnip fields will do you a world of good, and we'll come to meet you at luncheon. Now run away. I must dress, and then interview the housekeeper. You know the De Vignes are coming this evening. I almost forgot; and I have to arrange about their rooms."

He rose from the chair, and suddenly took her in his arms. "Oh, my dear," he said, softly, "God was very good to give you to me. Be a little careful of the gift, won't you?"

A sudden gravity overshadowed her face. "We are both very happy, Wilfred, now. But will it last? Does anything last?"

"Love does," he said. "I am sure of it. Won't you give that promise?"

"Your reason for wanting it?"

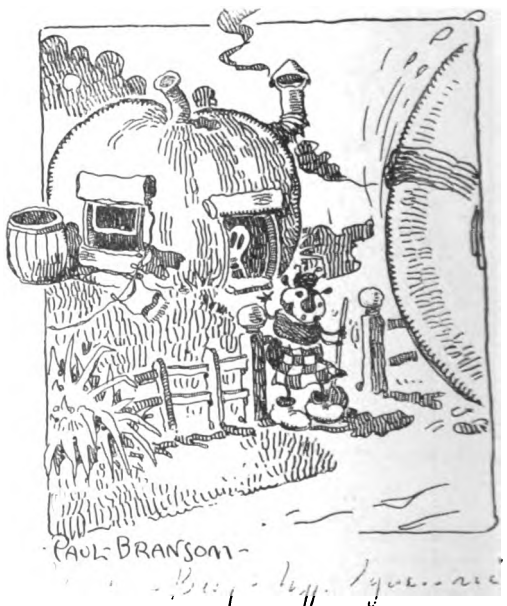
"Last night in your sleep you called me. You implored me to save you from some peril. I can't forget the terror in your voice. I can't forget the awful agony of fear that seemed to live in its echo. You seemed in the clutches of some horrible nightmare. I tried to arouse you, but I could not. Suddenly as the vision had come, so suddenly it departed. You sank back; but your brow was damp, and your face wore such a look as I pray Heaven I may never see it wear again."

"Wilfred, it was only a dream. I can't even remember it."

"I wish I could forget it," he said.

(TO BE CONTINUED.)

[The next chapter will be written by Percy White; the fourth by Katherine Tynan; the fifth by Iota; and the conclusion by Max Pemberton.]



Madam Bug: "My, I guess we'll have to move—with all these motor cars going by. One of them might get beyond control and break down our fence."

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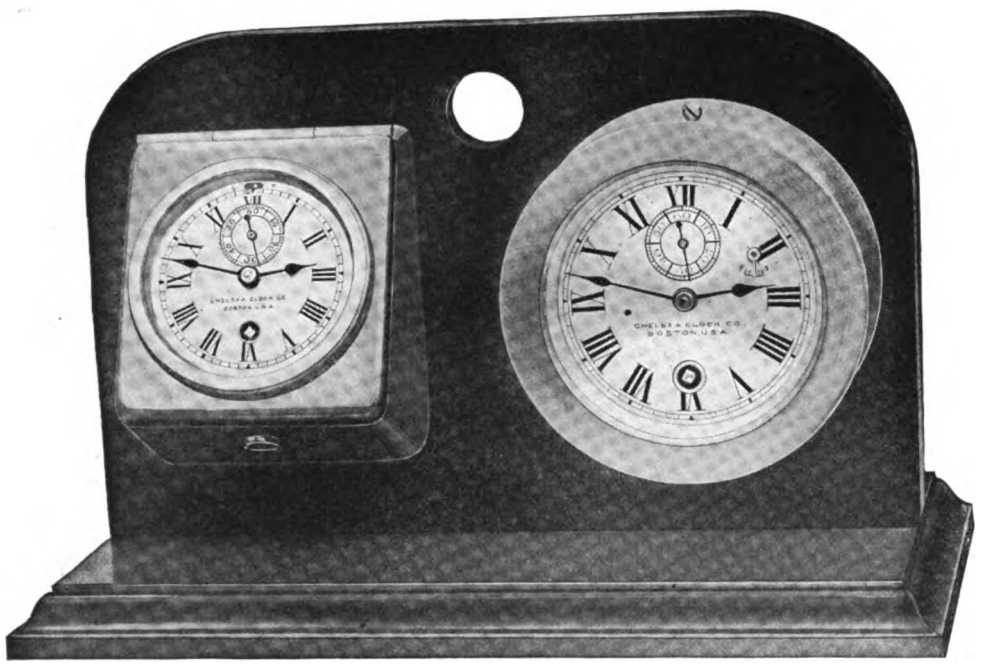
Sales Offices in all Principal Cities

WHITE SEWING MACHINE COMPANY CLEVELAND OHIO

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The "Chelsea" 8-Day, High-Grade **AUTO CLOCK**

(Trade Mark)



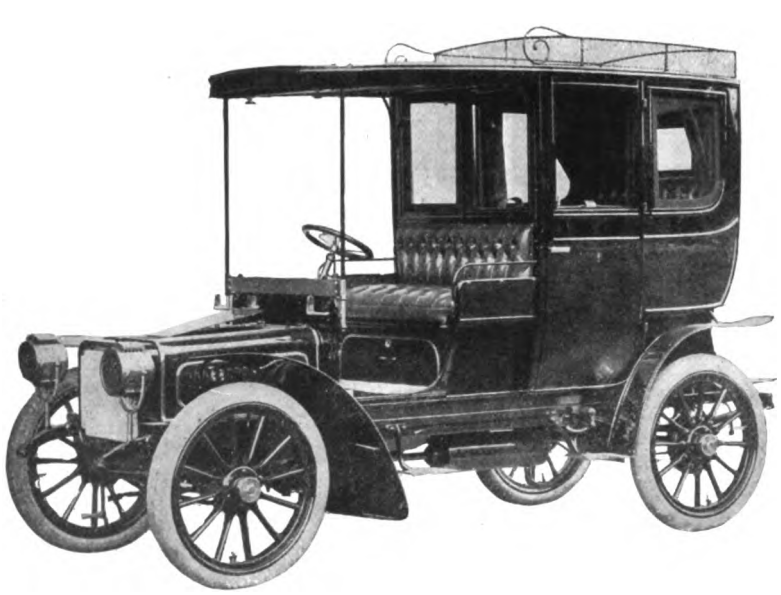
2¾-inch "SPECIAL" BEST in the WORLD Price, $36.00
Has Locked Case. Shows Dial on an Angle.

3½-inch MOTOR Clock For MOTOR BOATS and CARS Price, $24.00

Also, Two other AUTO CLOCKS, very high grade and quite similar in appearance to the above illustration of the 3¼-in. Motor Clock, viz: 2¾-inch, $26.00. 3½-inch, $28.00.
Sizes are the Diameter of Dials.—Duplex, Brass Cases, most thoroughly waterproof case on the market.
Our Striking SHIP'S BELL Clocks have for years been the recognized Standard for use on Best YACHTS, STEAMSHIPS, etc., etc., AND when fitted with SPECIAL BASE make THE BEST form of Striking Clock for use in Libraries, Sleeping Rooms, etc. Telling the Correct Hour and Half-Hour in Dark Rooms. PRICES, from $42.00 to $125.00, according to Size and Finish. Catalogues on application.
Make appropriate CHRISTMAS or WEDDING PRESENTS for you to make to your YACHTING, NAVAL or AUTOMOBILE FRIEND, or to your CLUB, or PRIZES for REGATTAS and RACES.

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☞ Largest Makers in America of exclusively 8-day, High-grade Ship's Bell Clocks, Marine Clocks, Auto Clocks, etc.



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Factory and Office, 602-604 WEST 52d STREET

Telephone, 4425 Columbus NEW YORK

WOULD I GO AGAIN? SURE!

By H. G. Barr.

Most motorists seem to think that unless they have lots of trouble there is nothing to tell. There is some truth in this, for what interest would there be in reading pages of matter about the successful runs all of us make in the majority of cases? We start the motor, run fifteen or forty miles, as the case may be, oil up, go thirty miles farther, have lunch, oil up again, and go home—making runs of from seventy-five to perhaps two hundred miles with no trouble at all. Anything to interest must have some spice of adventure, and perhaps nothing interests more, after having had troubles of your own, than to sit down and read about the other fellow's misadventures. Were we left to think that no one but ourselves had trouble, there would be some blue motorists.

The worst that ever happened to me—I have not said much about it around home—was when I arranged with three friends to take a camping outfit and go out on a Saturday afternoon to stay over Sunday. I knew a nice spot in a beautiful grove beside a lake, only twelve miles away; so, after dinner we loaded a tent and various trappings into the car.

We had just reached the city limits without trouble, when the radiator commenced to blow off steam at a rate indicating a pressure of about fifty pounds to the square inch. At a near-by stable we found a hose and soon had all cool again, but by the time we had gone another half mile steam was again up in the radiator. This time I made an inspection and found that the circulating pump was broken. We managed to proceed another mile, where there was a blacksmith's shop, and all hands piled out to watch me remove the body and take out the piping. The car stood in the sun and the usual crowd soon gathered to ask questions. There were times when I needed more air, but I managed to make a new part, without tools, and put the machinery together. Then I announced that we would try it again. After another two miles uphill we reached the worst hill of all, and, though I had never had trouble there before the car absolutely refused to take us up. By backing for a fresh start, however, and readjusting the carbureter, we managed to get up, ten feet at a time, resting the car between each effort. After we were up the water in the circulating system was so hot that I said we would refill and then hustle on to have the tent up before dark.

To hurry matters I undertook to open the cock in the bottom of the radiator and draw off the hot water. In my hurry I pulled it off bodily with the pliers, it evidently having been put on poorly. I ought to know, for I put it on myself. I sent messengers after a tinsmith and we found one after awhile who fixed the thing. But thunder showers, like time, "wait for no man," and they did not wait for me. By the time the radiator was repaired, a heavy rain was falling, and it kept becoming heavier. Of course, it had been necessary to remove the radiator to have it repaired, so to me fell the pleasure of standing out in the heaviest shower of the season while fitting it in place again. We waited until 9:30 P. M. for the rain to stop, but though it did so we unanimously voted that it was quite wet enough to swim, and altogether too wet to pitch a tent, so we decided to go to a nearby hotel. It took me an hour to get the motor going, because the rain had short-circuited the current somewhere, but I vowed that I would start it if it took all night, despite the fact that a guest at the hotel was good enough to offer to get out his own car and tow mine in. I at last succeeded, ran the car into the barn and went to my room. I was wet through, and delegated the other fellows to pay the bills, and kept discreetly out of sight. I was told, with more truth than choice language, that I looked like an old sock that had laid in a puddle for three months. The seven miles that we had traveled since noon naturally had tired us very much, so we went to bed soon after midnight.

The next morning was one of the sort that

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PIERCE

THE strength of the Pierce cars lies in their difference from all other cars. They are built upon principles upon which Pierce experts have worked for years.

The 1905 Pierce car expresses the best we know about automobile building, and we feel that five years of successful work count for something.

Pierce cars in 1905 will consist of three mechanisms and six cars.

The first mechanism is the 28-32 H.P. four-cylinder Chassis, mounted as follows:

The Great Arrow, Side Entrance, King of Belgian type Tonneau	**$4,000**
The Suburban, body by Quinby	**5,000**
The Landaulet " " "	**5,000**
The Opera Coach " "	**5,000**

The second mechanism is the 24-28 H.. four-cylinder Chassis:

Side Entrance, King of Belgian type Tonneau	**3,500**
The third mechanism is our well-known single-cylinder Stanhope, 8 H.P.	**1,200**

Pierce cars have won points in all endurance trials in which they were entered. They were awarded the Grand Prize at the St. Louis Exposition. They are American cars, built for American roads, American conditions and the American temperament.

The George N. Pierce Company

BUFFALO, N. Y.

Manufacturers of Pierce Cycles

Member of Association of Licensed Automobile Manufacturers.

AGENTS: Dowling & Maguire, Boston, Mass.; R. W. Whipple, Binghamton, N. Y.; H. Paulman & Co., Chicago, Ill.; The George N. Pierce Co., Denver, Colo.; Stirling Automobile Co., Detroit, Mich.; N. L. Biever, Derby, Conn.; Elmira Arms Co., Elmira, N. Y.; Waterman Bros., Fresno, Cal.; J. A. Place, Geneva, N. Y..; East Coast Automobile Co., Jacksonville, Fla.; L. H. Johnson, Los Angeles Cal.; Harrolds Motor Car Co., New York, N. Y.; The George N. Pierce Co., Oakland, Cal.; Wilson & Company, Ottawa, Canada; Banker Bros. Co., Pittsburg, Pa.; H. J. Willard, Portland, Me.; R. V. Connerat, Savannah, Ga.; C. P. Joy Automobile Co., St. Paul, Minn.; Mobile Carriage Co., San Francisco, Cal.; Standard Motor Car Co., Scranton, Pa.; Western Automobile Co., St. Louis, Mo.; M. C. Blackman, Syracuse, N. Y.; Miller-Mundy Motor Car Co., Utica, N. Y.; Central Automobile Exchange, Worcester, Mass.

1905 ANNOUNCEMENT

The Autocar

A New Type

We believe that the Autocar in all its types represents the highest excellence in automobile design, workmanship and material. Every Autocar is built on honor. We feel, therefore, that our new type will meet with a cordial reception.

This car, **Type XI,** larger and more powerful than the other types, has a four-cylinder vertical engine of 16-20 horse power. The body is built on the newest and most approved French lines. The front seat is divided and both front and rear seats are large and comfortable.

While this car is built upon the tried Autocar principles which have been so splendidly proven, it shows a number of very important improvements making for increased simplicity, ease of operation, safety and comfort.

In fact, though Autocars have always been noted for absence of bewildering intricacy of mechanism, yet no one can but be impressed with the extreme simplicity of this new car. It is a triumph in scientific construction and arrangement.

This car has more than met our highest expectations in the road test. In fact its performance has been a surprise to experienced automobile men. The power of the car carries it, fully equipped and loaded with five passengers, up tested 12 per cent. grades for instance, at 20 to 25 miles per hour on the direct drive, while on the level the car attains a speed of 40 to 45 miles. The car is a superior climber on any hill.

Altogether our eight years' experience has enabled us to produce in this type a four-cylinder car we are assured cannot be surpassed by any similar car at any price.

The Price of Type XI is $2000. Ready for delivery January 16.

Type VIII—Four-Passenger Car (at $1400,) and Type X—Runabout (at $900) . . . .

have made *Autocar Reputation.* Each stands at the head of its class for value and efficiency.

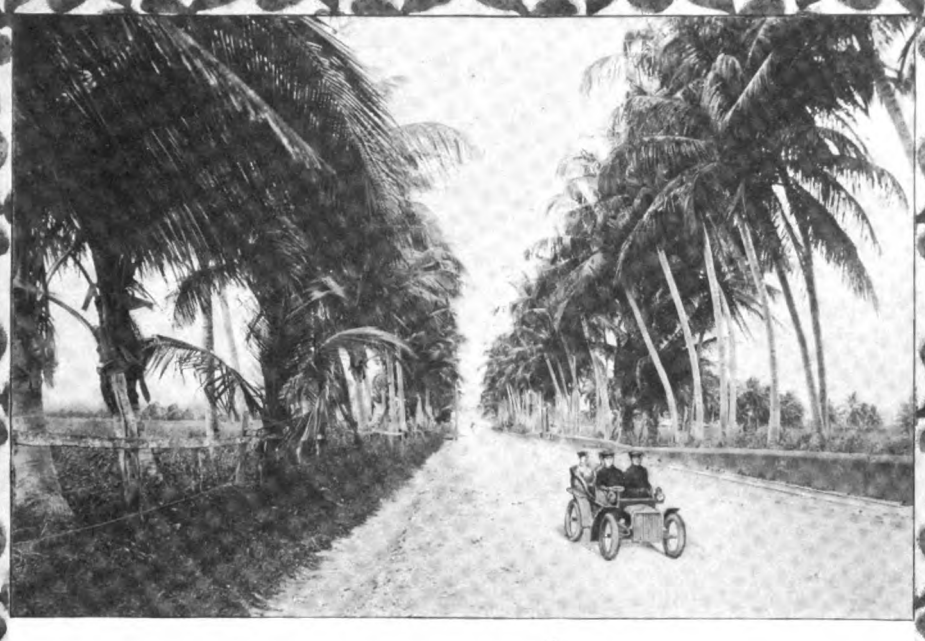
Autocars, Types VIII, X and XI will be on exhibition at the New York Automobile Show, Madison Square Garden.

Catalogue descriptive of the 1904-05 types will be sent free upon request. This catalogue contains also addresses of our dealers throughout the country, who will be glad to give demonstrations to prospective automobile purchasers and explain in detail the merits of our cars.

THE AUTOCAR COMPANY, Ardmore, Pa.

Member Association of Licensed Automobile Manufacturers.

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GOODRICH TIRES
FIT ALL ROADS

The Goodrich Clincher Automobile Tire is an American tire built for American roads, and affords the opportunity to travel untrammeled and on an itinerary of your own choosing. It is a matter of record that the longest and hardest trips have been successfully made on Goodrich Tires.

WINNERS OF THE GRAND PRIZE AT THE ST. LOUIS FAIR
THE HIGHEST HONOR EVER AWARDED TO AUTOMOBILE TIRES

The B. F. Goodrich Company
Akron, O.

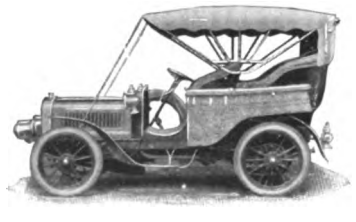
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SAN FRANCISCO, 329 Mission St.
BUFFALO, 9 W. Huron St.
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BOSTON, 157 Summer St.
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ALUMINUM
BODIES



SPRINGFIELD - TOPS



SPRINGFIELD METAL BODY CO.
376 Birnie Ave., Brightwood
SPRINGFIELD, MASS.
Space New York Auto Show
3, 4 and 5 Bow Tops and Attachments for all Cars



MOTOR *For the Reader—Interesting* *For the Advertiser—Profitable*

old Massachusetts furnishes when at her best, and which is good enough for any one. We started at 6 A. M., quickly arrived at our destination, pitched the tent and passed a day so pleasant that we all look back to it with smiles and pleasant recollections, regarding it as among the bright spots in our lives.

I am a veteran, so sleeping in a tent or even in the open on the ground with one blanket is a pleasure, but the other chaps seemed to have trouble with the mosquitoes. They spent a good part of the night in planting joss sticks around the tent to keep away the insect pests, and I heard them saying that if only they could cover up their heads as I did they would be all right, but they did not see how I stood it.

Monday morning we packed up and in twenty minutes were back over the road that had taken eleven hours and an overnight stop to cover in the other direction!

Would I go again? Sure! I have gone several times, and hope to keep going again as long as I am able to turn a starting crank. Such is the confirmed motorist.

Sometime I will give you a short account of a 258-mile trip that I made in a single day without a hitch except a broken spring.

Worcester, Mass., Dec. 10, 1904.

A ROPE FOR A TIRE

One bright Sunday afternoon we were driving along a country road, some two or three miles outside the city, in our little Oldsmobile, thoroughly enjoying the scenery, when suddenly there was a loud "pop," and a dropping of one side in the rear. From experience, we knew what this meant—a puncture. The entire party getting out, we proceeded to repair the leakage. This done, we started to continue. The clutch had hardly been thrown in to start, when another "pop" was heard. Upon investigation it was found that the tire had burst in a new place. This was repaired, and our journey went on for about another half mile, when another puncture occurred. We now decided to investigate the entire tire. Doing this, it was found badly worn and useless. Not having an extra tire, we were at a loss what to do, when one of the party suggested rope tires. A large rope was procured at a nearby building, and, winding this around our rim, we proceeded triumphantly on our trip.

LOUIS E. BEERS.

Bridgeport, Conn., Dec. 3, 1904.

REPLACING A BROKEN WHEEL

Two young fellows were working like beavers to replace a broken wheel on their motor car. The wire spokes had given way, and the whole affair much resembled a broken-down umbrella. The scene was Thirty-third Street and Broadway in the metropolis. The very busy thoroughfare was crowded with pedestrians, and of the wondering, gaping crowd some were critical, others curious. The nut which held the hub in place on the axle, either from expansion or rust, was immovable. The largest and heaviest squares of solid wrenches were applied with no avail. The brass nut or cap was losing its square shape from continual slipping. It was decided to stop all attempts, and there we stood, the sweat streaming down our faces. My companion then suggested that we use some kerosene. Thereupon, a can and some kerosene was secured from a grocery store on Seventh Avenue. The kerosene was thrown over the hub and set on fire. After it had burned out, another attempt was made, and gradually but slowly it moved, induced by successive rapping. The wheel in question was a rear one, that part of the vehicle being supported by a jackscrew. The nut once removed, the old wheel was pulled off and a new one slipped on. Then we resumed our motoring enjoyment.

T. F. M.

New York, Dec. 10, 1904.

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Swinehart TIRES

are being used to-day on all types of cars from the heaviest delivery wagon to the lightest runabout.

The idea that solid tires cannot be succcessfully used on motor-driven cars is shown to be a mistake from the experience of hundreds of users who have demonstrated that the Swinehart Tire has all the advantages of the pneumatic without the disadvantages.


KNOX


OLDSMOBILE


LOCOMOBILE


OLDS DELIVERY WAGON

Swinehart Tires Are Not Like Other Solid Tires

We want <u>you</u> to be convinced —at least write us and we will arrange for a demonstration.

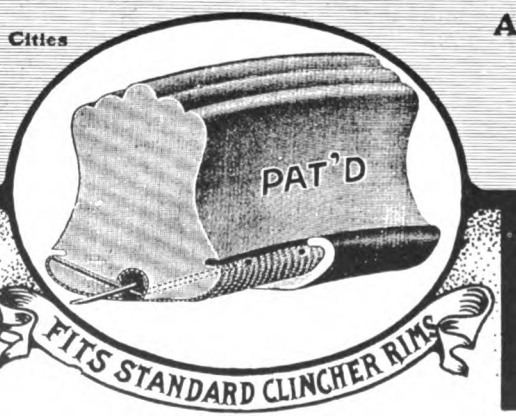

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THE SWINEHART CLINCHER TIRE & RUBBER CO.
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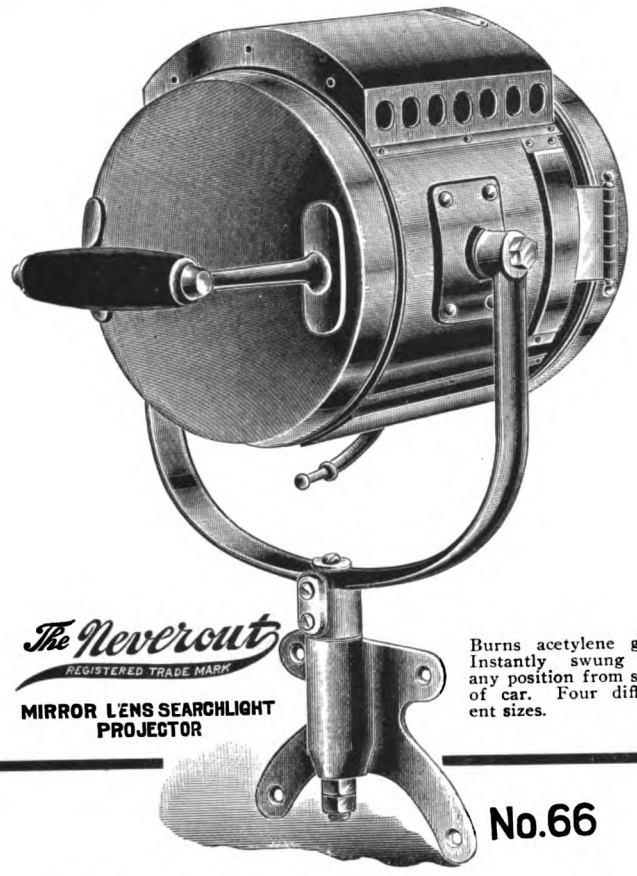
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The Neverout
REGISTERED TRADE MARK
MIRROR LENS SEARCHLIGHT PROJECTOR

Burns acetylene gas. Instantly swung to any position from seat of car. Four different sizes.

No.66

Be sure to see

The Neverout
REGISTERED TRADE MARK

at the New York Show

A great chance to get acquainted with the merits of this well-known lamp that revolutionized vehicle lighting.

Get us to explain the different points.

Ask as many questions as you want. Above all, compare *The Neverout* with other lamps. Then you'll know what wonderful lamps we offer.

The Neverout not only gives the brightest light and projects it the farthest, but it stays lit.

Elegant in appearance and strongly built—won't rattle or shake apart. Easily cleaned and the non-breakable mirror reflector always retains its original brilliancy.

The only lamp guaranteed to stay lit or you get your money back.

If you don't get to the Show, write us for illustrated catalogue—free.

Rose Manufacturing Co.
94 Arch Street, Philadelphia

Jacob's Ladder in the Old Bay State

(*Continued from page 36.*)

stretches of deep sand and marshy bottoms.

The other route straight ahead is that preferred by motorists because it is shorter and leads directly to a splendid piece of state highway nearly twenty miles in length and extending from East Lee through Lenox and Pittsfield and over the Taghkonic mountains to Lebanon Springs. Here the State of New York has built an expensive piece of roadway which enables one to accomplish the descent from the mountains in comfort and safety. Another advantage of this route is the fact that it goes directly to the top of the watershed. There are no intermediate valleys to be crossed, but you continue your ascent until the summit is reached. Once on top the traveler has nothing to do but to admire the extensive view, not forgetting securely to lock his brakes for the coast down to the valley of the Housatonic River. The geographical name of this hill is Morey Hill, but since it sprang into fame it has received a much more apt appellation.

It is only a matter of three miles to reach the watershed, but the road is an extraordinary one. On a five-mile stretch there are only four houses, and one of these bears the legend "Post Office." No cultivation greets the eye—all is wild and savage. The first part of the ascent is through a swamp thickly wooded; the road is rough and rutty, but your motor toils on. Suddenly there is a sharp rise, perhaps twenty feet in length, and over 25 per cent. in gradient. The motorist tries to take it with a rush, but meets with failure. His driving wheels revolve faster and faster, but he does not advance an inch. The roadbed here is composed of sawdust, refuse from a sawmill nearby that has long since fallen into ruin. Each year a certain amount of clay from the neighboring swamp is added by the roadmakers, and the result is a quagmire, which, especially after rain, is fatal to the progress of a motor car. No more sticky mixture could be devised. The heavier the machine, the deeper it will sink, and the motorist has to start off on foot to seek relief at the nearest farmhouse. The sides of the road are sprinkled with a miscellaneous collection of bits of board, fence rails, stones and other articles which have been brought here by travelers attempting to jack their machines out of the sawdust.

Until motor cars were invented, the inhabitants of this section led a poverty-stricken existence. Now the motor traffic has enriched them, and it is no uncommon sight on a summer day to see a half dozen cars struggling together up the slopes of "Jacob"s Ladder." At three dollars a haul, "there's money in it," and some of these farmers average from $10 to $15 a day for a few minutes' work. In the Automobile Club of America's run in the autumn of 1903, nearly all the participants had to be hauled up by live two-horsepower.

Once out of "Sawdust Hole," however, the motorist's troubles are not at an end. A bend of the road and then looms up ahead a hill which seems to reach up to heaven itself, and on this account is known far and wide as "Jacob's Ladder." Seen from below, the road is apparently perpendicular, and, indeed, it is not far from it. And such a roadbed—all clay with numerous "thank-you-ma'ms" and here and there springs oozing out of the soil. To make matters worse, this slope has for years been used for experimental purposes by the good roadmakers of Becket. As soon as the clay is washed into the gutters it is carefully thrown back into the center of the road, and left there to catch the next motor car. So agriculture has been abandoned in this part of Massachusetts, and the thrifty farmer keeps his horses ready to hitch on to the "devil wagons" that come this way.

When at last the summit is reached the traveler's eyes rest upon a vast panorama of hills and valleys. There is no sign of life; all is wilderness and solitude. Far down to the east one discerns the deep valley of the Westfield River, and, although the altitude above sea level is only about 1,820 feet, it appears to be much greater. On top, at a cross road, there

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ALLEN, HALLE & CO.

69 Wall Street and 89 Beaver Street, New York

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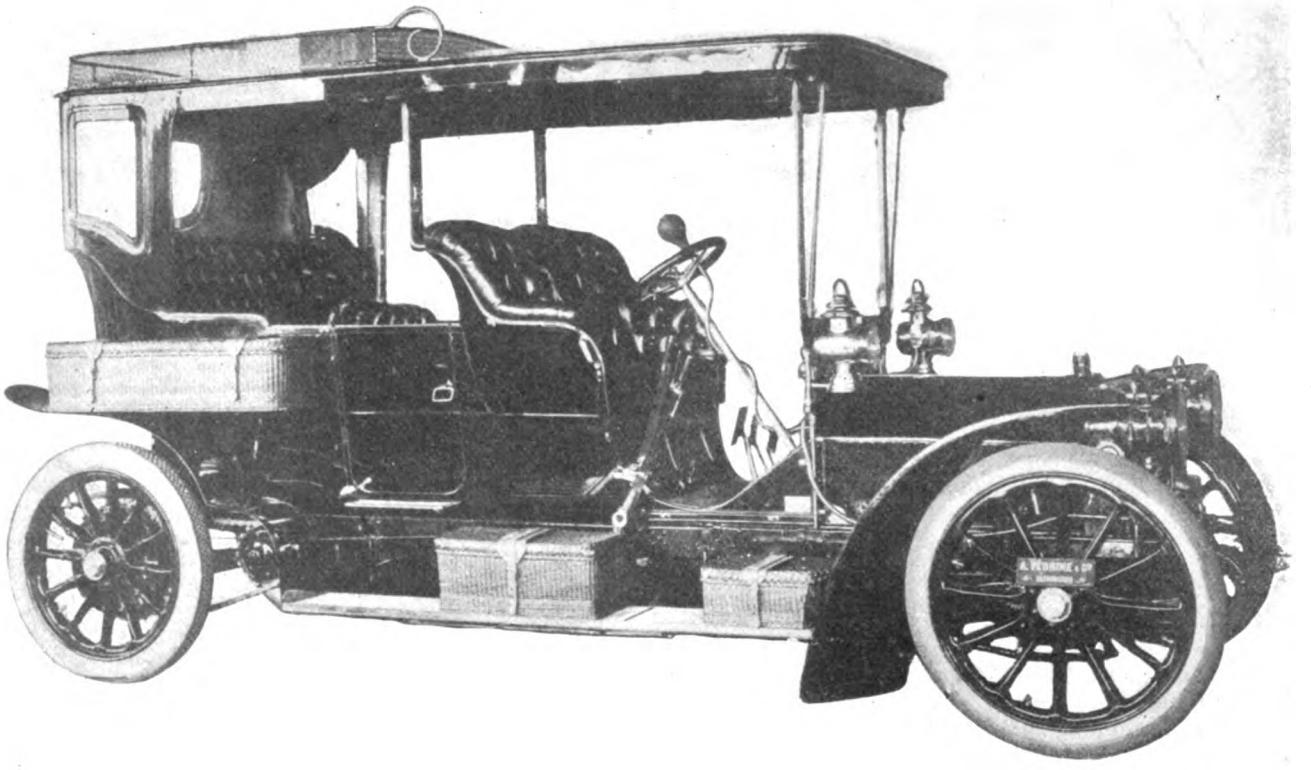
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MERCÉDÈS

Daimler Motoren Gesellschaft, Germany

The "Aristocratic" Motor Car of the World

Sole Representatives for C. L. CHARLEY, Paris



Orders Can Now be Booked for 1905 Models

Every Mercedes car imported must bear license plate, to be secured only through us. Otherwise owners will be promptly prosecuted.

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The Acme of Perfection for 1905

Type 9 Runabout

PRICE $800

Single Cylinder. Vertical Motor 8 H.P.
Three Speeds Forward and Reverse.
Ball Bearing Sliding Transmission.
Bevel Gear Drive.
Governed Engine Automatic Carbureter.
Weight 1,100 lbs.

Type 10 Runabout

PRICE $1,000

Two Cylinder Vertical Motor 16 H.P.
Three Speeds Forward and Reverse.
Ball Bearing Sliding Transmission.
Bevel Gear Drive.
Governed Engine Automatic Carbureter.
Speed 45 miles per hour.
Weight 1,200 lbs.

Type 6 Light Touring Car

PRICE $1,650

Two Cylinder Vertical Motor 16 H.P.
Three Speeds Forward and Reverse.
Ball Bearing Sliding Transmission.
Double Chain Drive to Solid Rear Axle.
Governed Engine Automatic Carbureter.
Detachable Tonneau. Seats 5.
Weight 1,900 lbs.

Type 8 Touring Car

PRICE $2,750

Four Cylinder Vertical Motor 28-30 H.P.
Four Speeds Forward and Reverse.
Ball Bearing Sliding Transmission.
Double Chain Drive to Solid Rear Axle.
Governed Engine Automatic Carbureter.
Double Side Entrance Tonneau.
Magneto Ignition.
Folding Capecart Top.
Speed 45 to 50 miles per hour.

A very interesting proposition, with photos and detailed description of all our cars will be mailed to agents in unoccupied territory.

The Easiest Selling Line in America. Better write.

ACME MOTOR CAR COMPANY

READING, PA.

DEVLIN & CO.
1407 Michigan Boulevard, Chicago, Ill.
Western Distributors

We will exhibit at
New York and Chicago
Shows

THE REAL THING

The General Sales Manager of one of the largest motor-car manufacturers in this country wrote to a man interested in motor-car publications:

"I visited Los Angeles, San Francisco, Denver, Salt Lake City, Omaha, and in San Francisco conferred with our representatives from Portland and other cities in the Northwest country. I was interested in making some special inquiries relative to advertising mediums, and it may interest you to know in what high favor MOTOR stands in all cities visited. In San Francisco and all along the California Coast it is thought to be the 'real thing.'

"I think MOTOR has a line up that is going to 'skin the board.'"

No Comment Is Necessary; the Above Speaks for Itself

A. L. DYKE AUTO SUPPLY CO.

UNDER NEW MANAGEMENT

ROBT. F. BRITTON, President and Manager. ROY F. BRITTON, Secretary and Treasurer

Although Mr. Dyke has severed his connections with this Company we will continue the old business under new and better system Write for Catalogue. Everything in supplies and equipments

541-545 WALTON AVENUE, ST. LOUIS, MO.

much greater. On top, at a cross road, there is a tumble-down schoolhouse, abandoned in the center of this region of abandoned farms.

Next comes a descent, steeper if anything, than the ascent, and in, perhaps, a worse state of repair. After a couple of miles downgrade, the West Becket post office, a solitary white house, is passed, and the road improves. The route skirts the north shore of a beautiful lake and soon Lee, with splendid state highway and its famous marble quarries, is passed. Then the Housatonic River is crossed and the motorist has reached the center of the Berkshire Hills.

With this ever-increasing army of motorists who visit this region, the road across the Hoosacs becomes a matter of serious interest. Thanks to the liberality of the Automobile Club of America and a few of its members, temporary repairs will be made to "Jacob's Ladder" proper in the spring of 1905 and under the superintendence of the Massachusetts State Highway Commission. But the road is not properly laid out, and nothing done in its present position can be more than a makeshift. The Automobile Club has placed sign posts on a route farther south and but two miles longer, avoiding the worst part of the road, but at the same time missing the best of the scenery and several miles of excellent state highway.

It has been estimated that a proper highway on a reasonable grade could be built across the divide for a sum not to exceed $25,000. The town of Becket, through whose territory the route lies, has no money to spare for such a purpose, and under the terms of the statute which defines its functions, many years must elapse before the Massachusetts State Highway Commission can give serious attention to "Jacob's Ladder." The fees collected from the registration of cars in this commonwealth under the law of 1903 already amounts to a far greater sum than that needed to construct a road over the main range of the Hoosacs. What more just disposition could be made of this fund than to expend it for the benefit of those who are thus taxed?

A VOICE FROM BECKET

The following letter to the Springfield *Republican* from West Becket is rich, rare and racy:

"I s'pose you have red in the newspapers about Jakeups Ladder, an' all the otomobeels gittin stuck in the mud. An' how all the farmers along the road was gittin' ritch pullin' them out an' lots of other stuff. Well taint so. Ile tell you all about it an I ot to know bein as I live rite here. Theres ownly about 4 miles of bad rode ennyway from Leuts corners to Curt Andrews an only one bad hill what aint very bad eether.

What made all the trubble was a littel pitch not more then 10 feet hight with sawdurt on it. When the otomobeels struk this the wheeles turned round but the rest of it dident go. The hole bizness cood have been fixed for 10 dollars but the road comeishauer dident do nuthing. I wunt say ennything agenst him becuze weer related but ennyway he dident do rite. Of coarse you can't expect to have a bowlevard where you ownly have a dollar a mile to bild it with. What made all the fuss about it was the newspapers an Mr Bishup of Lennex who dont seem to have enuff bizness of his own to tend to I red in the paper the other day where he tride to cross the Alp mountings in an otomobeel an I hope he duze it an stays there. What Im ritin this for is that I want fokes to know that there is gust as smart peeple here as enny where else exceptin Becket Center village an that there just as honest as ennybody is an aint to blame because an otomobeel gits stuck. If it was a farmer that got stuck evrybody wood laff at him but becuse its an otomobeel that gets stuck youd think by the papers that we was a lot of hiway robbers up here. Pleese encert this in the columns of your paper so fokes ill know weer just as good as ennybody is an I thank you for the same.

Respectfully Yours, JOHN BORDEN.
West Becket, December 2, 1904.

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ALBANY GREASE

FOR YOUR

AUTOMOBILES



LOOK OUT FOR YELLOW LABEL

WHY ?

It is the only safe lubricant.
It is the standard "auto" lubricant.
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Fastest, Strongest



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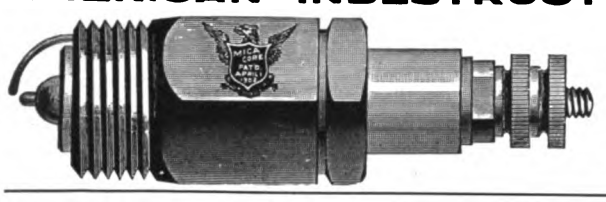
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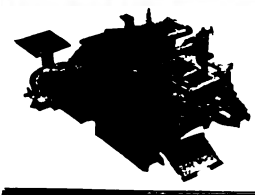
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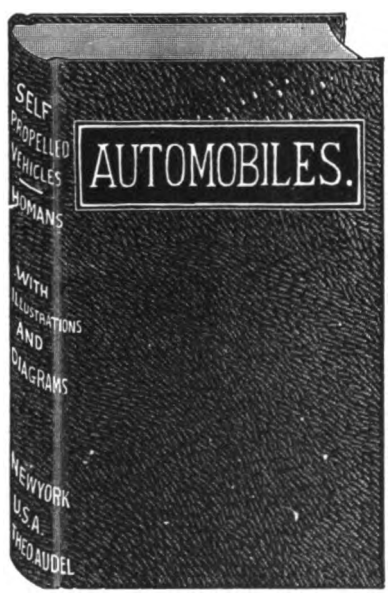
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BOOKS ON MOTORING.

In "The Complete Motorist," which is the latest contribution to the literature of the new conveyance, A. B. Filson-Young has, in a way, done for the motorist what was done many years ago for the fisherman by Izaak Walton, in his "Compleat Angler." The new book is a compound of inimitable wit, really valuable information, and good English, and is calculated to be as valuable as it will prove interesting to every owner and prospective owner of a car. Mr. Young's established reputation as a writer in other fields, together with a very clear and practical knowledge of engineering subjects, evidently have stood him in good stead, and while he rambles through a good many anecdotes and "cases in point," he never fails to ramble interestingly and instructively. The history of the motor car destructively. An abundance of first-class illustrations help the lucidity of the text, and a number of personal letters from prominent motorists, including Rudyard Kipling, Charles Jarrott, Lady Jeune, Major Lindsay, Sir Horace Plunkett and others, form an interesting innovation. McClure, Phillips & Co., of New York City, are the American publishers.

There doubtless are times when the joys of motoring are little different from those of bowling along through the countryside in a comfortable trolley car. Though the trolley car is confined to tracks, it is very true that the tracks often extend to places where it is highly desirable to go, in which case one kind of motor vehicle may be about as good as another. Some idea of this sort must have been the inspiration of "A Trolley Honeymoon," a 125-page booklet in which Clinton W. Lucas tells, in a most readable and entertaining manner, of the adventures and misadventures that befell himself and another in trolleying from Wilmington, Del., to York Beach, Me.—a distance of about 500 miles, which, it will surprise many to know, may be covered by a practically uninterrupted series of electric roads. The way the start was made with a huge lead pencil filled with new nickels for carfares; how, when the journey was ended, there was not a nickel left; and the bunch of things that happened between times, are matters only to be appreciated by reading the story. Much of the information in "A Trolley Honeymoon" will prove helpful to motorists. M. W. Hazen Co., of New York, is the publisher.

In the "Elements of Yacht Design," by Norman L. Skene, and "Hints to Young Yacht Skippers," by Thomas Fleming Day, there is much to interest those who would go down to the sea in ships—even in ships made and owned by themselves, and possibly built by themselves. There is an entire lack of anything like brief, clear and well-written expositions, intelligible to the beginner, of the more elementary, facts concerning boats and navigation. This lack is largely remedied by the two works mentioned, and there is no question but that they are certain to be of the utmost help to the amateur boatsman or yachtsman, who is deficient in knowledge and experience, but who possesses plenty of ambition, and desires to build a boat, or at least to own and run one. While there is little, either in Mr. Kene's or Mr. Day's contribution to maritime literature, that relates directly to motor boats, there is much that cannot fail to be valuable to motor-boat owners. Such, for instance, are the various facts in "Hints to Young Yacht Skippers" having to do with navigation, and with the established rules and customs of the waterways. In the "Elements of Yacht Design," the department of naval architecture that relates to the regulation motor boat, has no place. Nevertheless, in these days of sailing craft with auxiliary motors, even the subject of yacht design is not without interest to a really ardent motorist. Both books are published by The Rudder Publishing Company, of New York and London.

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Model "A"

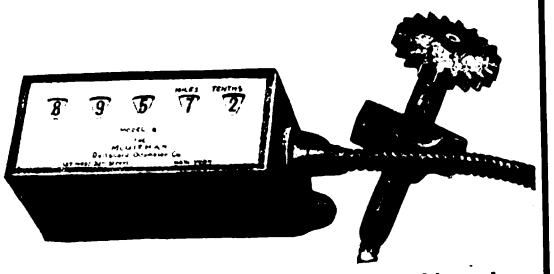
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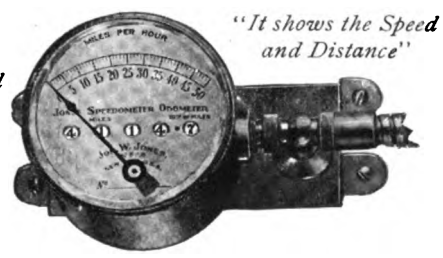
Jones Speedometer shows the speed.
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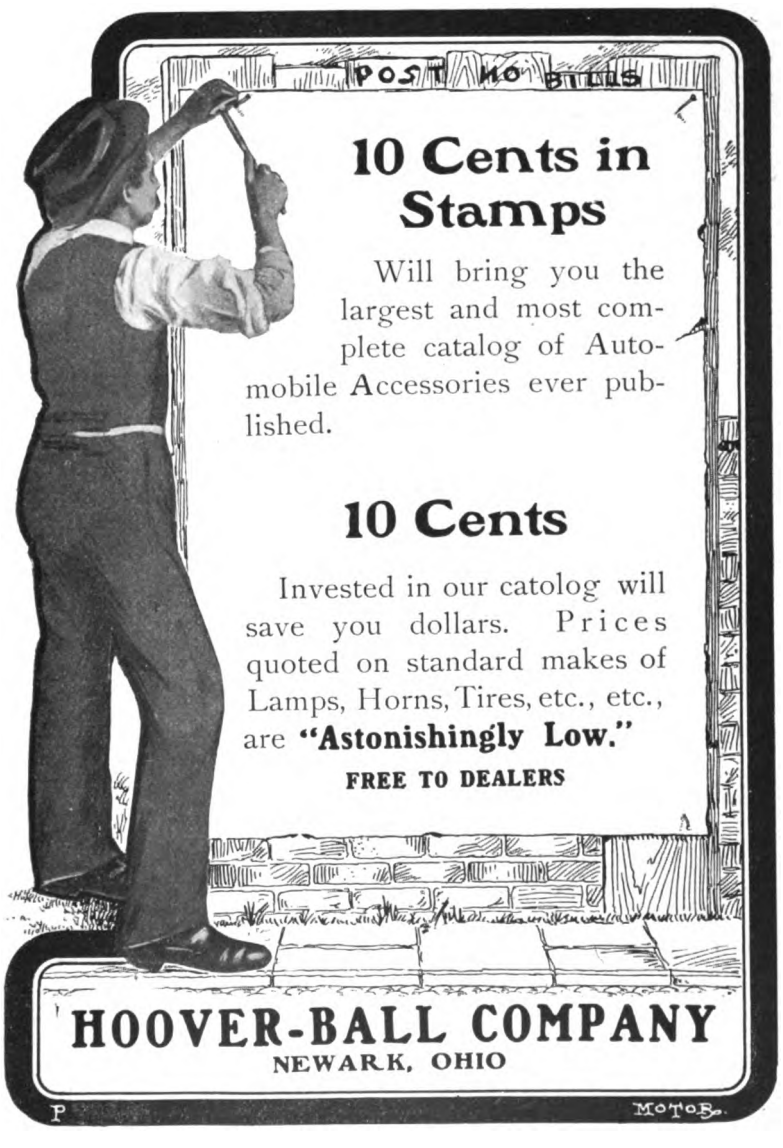
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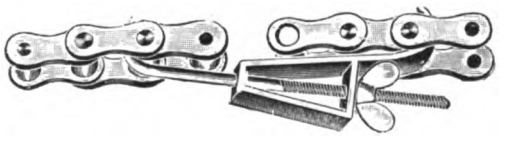
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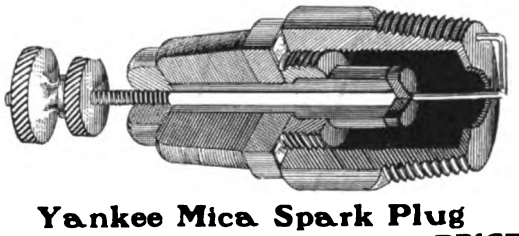
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THE SENSATION OF SPEED

Motor racing naturally finds favor with the French temperament, and the impressions given below by noted French drivers are characteristically French.

Henry Fournier gives his sensation of traveling at the rate of eighty-six miles an hour as follows: "Listen, and I will whisper to you. It leaves no impression on my mind at all—I have no sensation, no nerves, no fear, when traveling at this speed. I am all eye, all will, all calm reason. That's all. And," continues he (and this is truly French), "the trees bordering the roads, as I rush past them, do not turn my head as much as the sight of a lovely woman!"

Baron de Forest says: "Of all the sports which I have followed since I was captain of my college football team nine years ago—and they are numerous, as I have gone in for shooting, hunting, steeplechasing, yachting, tobogganing, etc.—I can assure you that none of them gave me the same powerful emotions as when competing in such races as the Paris-Berlin, the Paris-Vienna, and Paris-Madrid. The joy one experiences when overhauling a competitor, and passing him at full speed, cannot be expressed in words. Let me add, however, that when I am not upon a racing machine and not preparing for a race I do not care to drive very fast. It is too great a risk, and is very fatiguing."

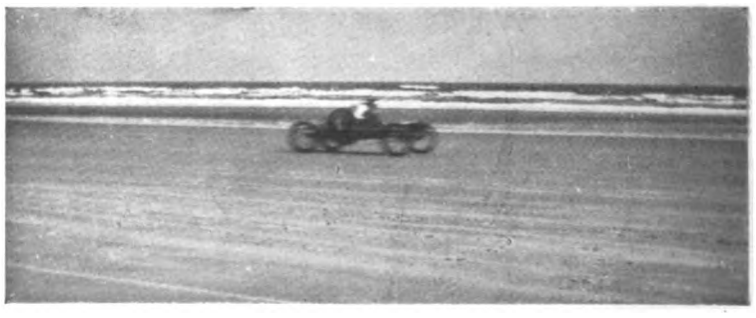
De le Touloubre excuses himself for the apparent bloodthirstiness of his confession by avowing that he has never done more serious harm than the annihilation of two dogs. He says he is opposed to excessive speed except while racing. Then he is remorseless. Everything must be sacrificed to the end in view. It gives him a joy unspeakable to bend all his energies to the task of passing his competitors, even if to do so he has to see them overturned and helpless. He thinks only of the joy of victory, and strains every faculty to reach it. As for the impression produced on the nerves, he thinks it is a question of habit. Formerly he traveled at the rate of thirty miles an hour, and thought it a good speed; now sixty miles an hour makes no more impression on him, and in the near future he hopes to travel as unconcernedly at a hundred and twenty as he did at thirty miles.

The impressions of Henry Farman regarding excessive speed are worthy of note. He thinks it would require a man of really literary genius to fitly express them. In a race he describes himself as dominated by one idea—that of passing the competitor in front. He wrote down his impressions of the Paris-Madrid race directly after the event, otherwise he said he would have remembered nothing of them, as they are very fleeting. One of the principal sensations he experiences is that of being superior to the laws of gravitation—he seems to have no weight—to float through the air (if the mad rush may be described by any such term). He says he has the sensation of being lifted from the seat, and has really to hold on to it for fear of being carried bodily away, and the force of the wind is such that the muscles of the neck ache for days afterwards from the resistance they have to bring to bear against it. Going on a switchback, he says, will give some faint idea of what it is like in a hilly country.

M. Charron says it feels to him like a kind of intoxication, not at all disagreeable at first, but soon becoming very fatiguing, when it is really painful. He is further of the opinion that the present high rates of speed are no real test of the capabilities of a good driver, as he is at the mercy of any accident that may happen—even a stray dog. He sums up his opinion in two words—"excessively disagreeable."

Maurice Farman says it gives him a sensation of not being on solid ground, but rather rushing or being drawn through space, to fall over the bridge of a precipice or in some gulf awaiting him at any moment. "But," he adds, "the quicker I go the more collected and calm I become."

Madame du Gast says she is strictly opposed to excessive speed except when racing. "Then," she continued, "the danger of an accident is always present in my mind, though I am never afraid. Many a time the thought presents itself to me: What if a wheel should come off, or the steering gear break off in my hands—what would become of me? But never for one moment do I lose my presence of mind. With the turning of the wheels words fit themselves in, or a line of a song, which beats itself again and again into my brain to the rhythm of the wheels. But, as soon as I catch sight of a competitor's car in front, I have but one thought, one idea—to get before it—to which I strain every nerve, and my car seems to literally stand still—so quickly does my impatient spirit outstrip it——until I have passed my rival. Then I inhale with every breath a profound sense of satisfaction, and feel that life is really worth living."



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European Plan Automobile Headquarters

Winter Touring in Italy

(*Continued from page 37.*)

in it, and from its wells will be found attractions which have been sufficient to make "The Inn of the Four Nations" a rendezvous of artists for over a century.

At Pietra Santa the road enters the old State of Tuscany, and, except in a few places, the country is generally flat, the road skirting the hills through olive grounds which have the oil of Lucca world renowned. The city of Lucca is in a rich plain, almost surrounded by the Appenines, and by a beautiful drive up the valley of the Lerchio, amidst forests of chestnuts and olive trees, and over three bridges remarkable for their elevation, form and situation, are reached the hot baths of Lucca, in a mountain side, amidst delightful shade.

On leaving the plain of Lucca the road lies through a narrow valley into the plain of Pisa. There are few spots more striking than that from the Piazi of Paris, whence one comprehends, in one view, the celebrated Leaning Tower, the Baptistry, the Duomo, and the Campo Santo, an aggregation of buildings which I must leave the motorist to unravel the story of, from local authorities. All I can say is that he will be amply repaid for his trouble, and he will find a thousand things, besides those I have indicated; from the city walls to the farm of the government, where camels were formerly largely bred (and still some are) to bring wood into the city. The quays of the Arno, forming broad streets, along both sides of the river, were one of the earliest examples of embankments made to minister to the beauty of cities, of which the Pisans may well be proud; an example which Paris, and London, have followed, and New York has, though late, bettered the example.

The direct road to Florence from Pisa would avoid Leghorn, but no motorist would think of omitting this important port from his itinerary. The road to it from Pisa runs through a rich, flat, plain, and the chief street, entered from the Port de Pisa, leads direct to the harbor.

Returning to Pisa the whole route thenceforward lies on the left bank of the River Arno, through a beautiful valley, richly picturesque and luxuriant in vegetation. No line of road in Italy presents so great an appearance of industry and comfort (beggars notwithstanding, for they seem to increase in proportion to the surrounding wealth.)

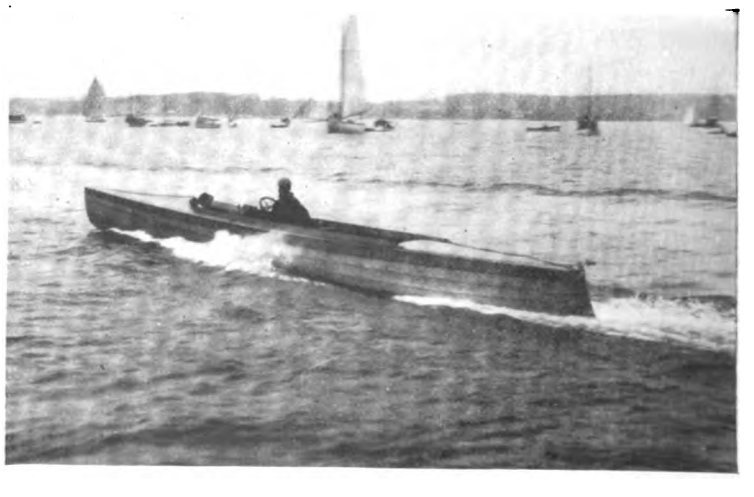
The most populous of the little towns along the route is Empoli, the inhabitants of which will declare that their pottery is a lineal *descent* from the time of the Etruscans. It was at one time a town of importance, and its ancient houses have been the homes of men who loom large in the story of the Ghibellines.

The approach to Florence by the Val d'Arno is the least favorable direction in which the city can be seen; in fact, the city cannot be well distinguished until one is close upon it, when the cupola of the Duomo, and the Campanile, the tower of the Palazzio Vecchio, and other domes, towers and churches, rise above the trees of the Cascini; and ancient Fiesole on its mountain, backed by the Appenines, completes the picture.

The entrance from the Val d'Arno road is through the porta di S'Fridiano, one of the eight ancient gates of the city. By following this street up to the Trinity bridge, or the next one above it, the Ponte Vecchio, the distance is short to that center of artistic and historic interest, the Piazzi della Signoria, known to old travelers as the Piazzi del Grand Duca, in which, or near which, are the finest examples in the world of the Tuscan school of painting, canvases by Titian, Guido, Correggio and Raphael, and of the Italian school of sculpture, Angelo, Donatello, Benevenuto Cellini, not to mention the treasures of the Pitti and Uffizi galleries, and a hundred other depositories of the masterpieces of the Italian artists.

The homes of Dante, Fra Angelico, Michael Angelo, Savanarola, and a host of other world figures, with their stories, cannot be disposed of, or even hinted at with advantage, within the scope of these tours, nor need the attempt be made, ample material is available in every shape, but let no visitor reach, or leave, Florence without reading the entrancing work of Mrs. Oliphant, "The Makers of Florence," nor without taking in the neighboring excursions, which should certainly include Fiesole and Vallambrosa, and one other, which will lead you to that martyr of science and conscience, Gallileo's observatory, where the *to be* blind astronomer met the *to be* blind Milton, the one the master seer of facts, the other of beatific visions.

The next stage will be from Florence to Rome.



SHOOTING STAR, THE LOZIER CREATION

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Baldwin Automobile Chains

always steps in advance



See illustration of our new detachable chain. It cannot detach while in use or by accident. Detachable at each link when desired. Each link riveted. This gives the firmness of a riveted chain.



Note form of chain when it is desired to detach it.



Note new riveted chain with extended inside links with nacely rounded edges. *THESE ARE FOR A PURPOSE.*

It makes for straight line, smooth, quiet running. *THE BALDWIN WAY IS THE SMOOTH WAY.*

If you are interested send for fuller description.

PETERSON & DRAPER,
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Sales Agents.

BALDWIN CHAIN & MFG. CO.
WORCESTER, MASS.

TOPS *of Every Description*

Our (1) Coupe Canopy

DOCTOR'S FRIEND
Brass Trimmed, - $100.00
Black Enamel - 75.00
Fits any Runabout



(2) Divided Top

Rear Detaching with Tonneau
Making Coupe or Full Canopy



(3) Full Canopies

Brass, - - - $125.00
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Large Cars, $25.00 extra
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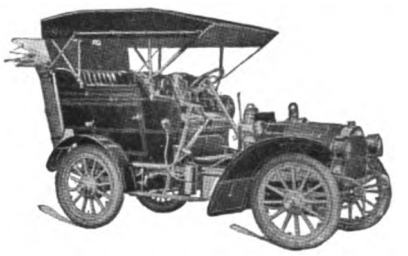
(5) Extension Tops

Like Cut, - $100.00
For Fine Cars

(6) A $50.00 Leader

For 1905

The Extension Top shown:—Straps in front instead of brass side braces, regularly sold at $75.00; also a 3-bow top at $10.00.



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For Efficiency we Challenge all Others, Domestic and Foreign



At the Automobile Shows notice Whitney Chains on most of the Leading Cars



The Whitney Mfg. Co.
HARTFORD, CONN.

1905 Handbook of Gasoline Automobiles Issued for the Information of the Public who are Interested in their Manufacture, Sale and Use

This new edition of this handsomely bound and artistically printed book containing illustrations of about 125 gasoline cars, will be ready for mailing about February 1st, 1905.

The products of the principal manufacturers throughout the United States of America and the Importers of gasoline machines are shown by illustrations and specifications. These specifications form a series of the leading questions that arise in the mind of the purchaser, with the answers thereto in red ink. The questions being uniform, the ease of comparison is obvious and the purchaser is enabled to select the machines which are best suited to the service required to his personal taste, or the means at his command.

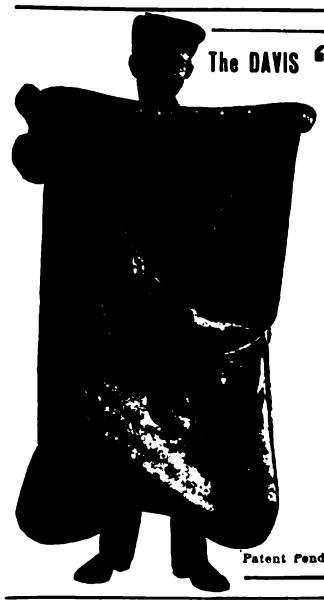
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The DAVIS "AIR-TIGHT BAG"
LAP ROBE

Is to the occupants of the automobile or carriage what the furnace is to the house, for it is absolutely

COLD, WIND AND WATERPROOF

Guaranteed to keep you warm and dry in any weather all day long. It is hand made of pure Rubber Drill or heavy Black, Tan or Blue Mackintosh Cloth. Lined with heavy imported dark green plush leather shod. Adjustable to fit anybody and **stays** in place until you stand, when it **FALLS AT YOUR FEET.**

Price, $10. "Baby Bear" Fur, $20

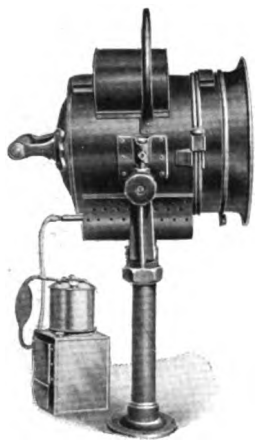
This robe **bifurcated** makes an ideal overgarment for the "man at the wheel," and is called the **"DAVIS ARCTIC OVERPANTS."** Send **height. Price, $10; Fur, $20; Leather, $15.**

Sent on receipt of price on approval to responsible people for examination and trial.

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THE DAVIS ROBE CO., Inc.

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You can see around a corner with this light.

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ESTABLISHED 1889.

AMERICAN BATTERY COMPANY
162 SOUTH CLINTON ST., CHICAGO, ILL.

MOTOR AND CAMERA

By Tourist

No motorist of artistic inclinations can afford to ignore the intimate relation which may exist between road riding and photography at all seasons of the year. In spring there are the various phases of awakening nature; in summer the full development of all her glorious beauty; in autumn fruit on tree and in field—later the falling leaf and the harvest home, and in winter earth's mantle of white, not infrequently packed by travel until suitable for passage by the motor car. All these things are readily caught and preserved by means of the camera, providing a record that cannot be rivaled by written descriptions or equaled for fidelity by the painter's brush. It is, too, an eminently practical pastime, more fascinating than anything else except the tour-making itself. One may easily familiarize himself with all the essential details in a comparatively short time, and the many added pleasures and interests are well worth the slight expense and trouble entailed. Outfits may be procured to meet almost any requirement of space or weight, to take the size of pictures wished; and the price at which an outfit can be obtained is no index to the amount of pleasure its use may afford.

With a camera near at hand one may carry away with him a faithful reproduction of what has excited his own admiration for his own later reference and the enjoyment of his friends. Two cameras might well be used, one small Kodak for persons or animals in action, such as could not be had by any studied posing—"motion pictures"—and a second and larger one with tripod for larger, more distant views, ancient buildings, characteristic outdoor scenes, natural curiosities and the like. The experience required to get creditable results is easily and quickly acquired. One need at first know little beyond the finding of focus and turning the camera in such a manner that the sunlight has no chance to get into the lens.

Most cameras are fitted with an automatic device for timing the exposure, and the range covers everything from the simple touch-button arrangement to shutters of considerable delicacy and almost any desired rapidity of operation. The development of the pocket camera has turned the attentions of the manufacturers to the production of outfits occupying but a small part of the space formerly required, yet so ready for use that they possess all the advantages of fixed apparatus. The room to carry such an outfit is easily arranged in the motor car, and as a pound or two of additional weight does not matter, one may take a sufficient supply of plates or films to meet any possible emergency. All necessary operations can now be conducted in daylight, making a darkroom unnecessary. Plate holders provide for the larger cameras, and daylight loading cartridges for the smaller ones may be handled by the veriest tyro without fear of losing his pictures.



A "WHITE" PARTY IN WESTERN PENNSYLVANIA

If one's interest should lie almost wholly in the direction of securing the picture, there are numerous places where a small fee will pay for the development of films or plates. One soon learns the proper amount of "time allowance" to make for the various conditions of light, and the dealer from whom the motorist secures his supplies will always be ready with advice, if needed. A rather close attention to detail is necessary, however, for success in this direction. One rapidly acquires familiarity with the respective merits of various photographic supplies, and discourses understandingly of "printing out" and "developing papers"; and his interest is in no way lessened when he learns that he can make as good prints by night as by day. And when one has had a particularly enjoyable day out on the road, what pleasanter reminder of it could he have than a photograph of the car and its occupants on some hard-won height? Or what more suitable souvenir for one's guests on a pleasant day's run than a reproduction of some place or scene of especial interest to all, for which particular admiration has probably been expressed?

The camera belongs in the outfit of every touring motorist, and few cars scheduled for long trips will start out minus some sort of a picture-taking adjunct.

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DIETZ

MIRROR LENS SEARCHLIGHTS

We offer a new design with many attractive features. The back of the Lamp is hinged so as to provide ready access to the reflector. All are fitted with best quality Mirror Lenses, properly shaped and focussed to give the best results in use on automobiles.

We are prepared to furnish handsome and strong brass brackets (both shifting and stationary) for these lamps.

The Lamps are made in three sizes, 6", 7" and 8".

DIETZ

OIL LAMPS

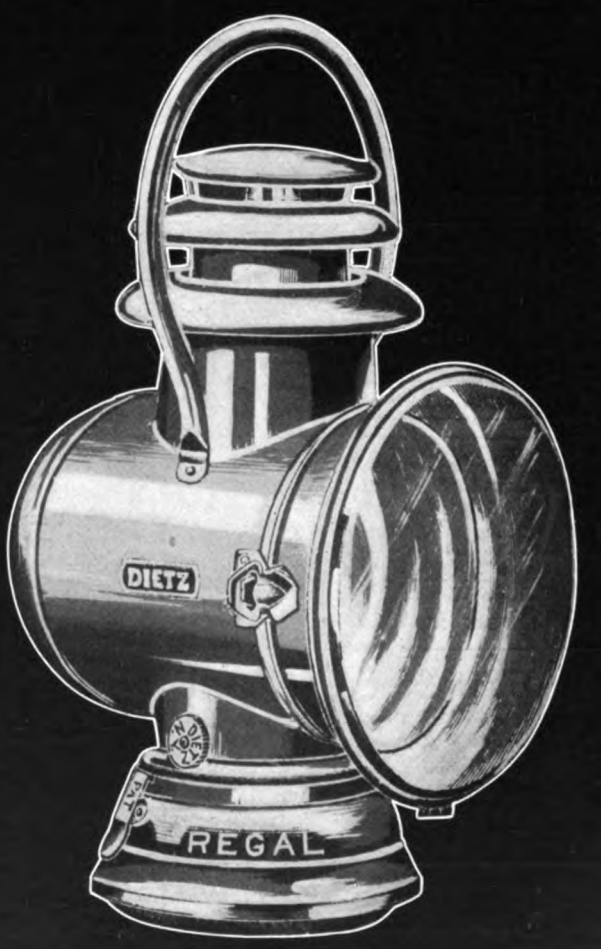
We have made several improvements in our Oil Lamps this year. These improvements, while they make but little difference in the outward appearance of the Lamps, are quite an addition to their present good qualities.

The bodies of the Lamps are drawn from one piece of heavy gauge high-grade brass, and the reflector is made of aluminum and removable at will for polishing.

They are unquestionably the HANDSOMEST, STRONGEST, BEST BURNING LAMPS ON THE MARKET.

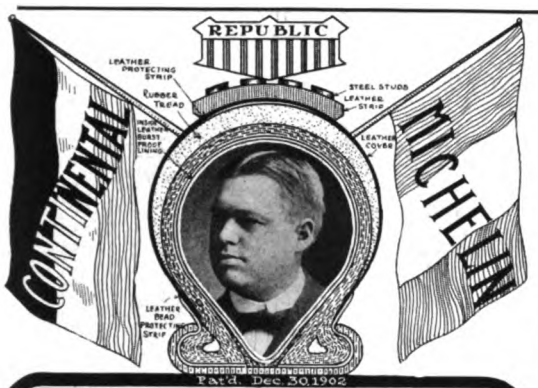
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MOTOR

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of the Motor Tire business and can repair and recover your **Continental** and **Michelin** or **American tires** and make them as good as new. If you would *save money* and desire *good work* send your tires to *me at once.* I will fit your tires with extra heavy rubber vulcanized treads or supply **Republic non-skid leather covers** (patented) for winter use. Inner tubes vulcanized. Single tube motor tires repaired. Solid and Cushion Tires applied. Prompt service and satisfaction guaranteed. Prices on all work by return mail. Frederick E. McEwin, Manager.

THE REPUBLIC RUBBER TIRE & SHOE CO.
138 West 52d Street, New York City
Telephone, 2795 Columbus

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MAKE A REAL NOISE

If you want people to get out of the way of your car make a noise they can hear, before you are on top of them. The WATRES power signal is the only device for making a blast that can be heard far enough to be of use.

The signal cord rests on the steering wheel, or, grasped in the hand, a turn of the wrist without taking your hand from the wheel does the business.

POWER TIRE FILLFR

The same device by a turn of a valve fills your tires while the car is at rest.

A minute fraction of spent gas is taken from the engine and stored in a tank 6 x 12 inches in size screwed beneath the floor of your car. A chime whistle or the hose for the horn is attached to this tank. Another connection runs to the tire.

The price, complete, including whistle and tire filler is $35.

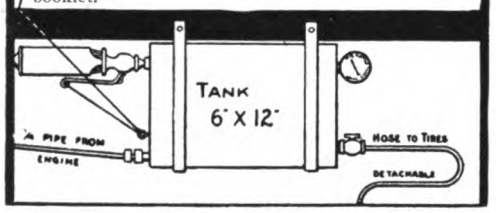
You can use the whistle if you like, or you can use your own horn. Our connection is adapted for either.

We supply the whistle, but not the horn. Shipment made on receipt of check. You may use it for thirty days and if you don't think it worth twice its cost send it back and we'll refund your money.

Anyway, send for the "Auto" signal booklet.

THE GAS ENGINE WHISTLE CO.
1135 Broadway, corner 26th Street, New York

We also make the only successful power whistle for fotor boats. Send for "Boat Whistle" booklet.

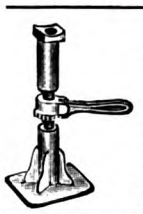


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Powerful Ratchet Double-Acting Screw Jack

Easy to Operate Quickly Adjusted

No. 501 weighs 7 lbs., will lift 3000 lbs, and adjusts in height from 11 to 17 inches.

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SOLE LEATHER HAMPERS

For AUTOMOBILES

Steel Frame, Hand Sewed, Linen Lined, Waterproof, Dustproof. Also Number Pads and Lamp Numbers in accordance with New York Law.

JOHN BOYLE & CO.
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: Send for circular and prices : : :

A MOTOR JAUNT AND JOLT

One afternoon recently I started out for a spin, and had planned to make South Bay, a small town about six miles away, my destination. I was accompanied by one of my girl friends, who was then quite enthusiastic. We reached South Bay, spending a few moments in oiling and taking in more water, and hoping that we would reach home safely. Although we were not so far from home we did not care to walk. All went well until we were just beginning to feel that we were the happiest mortals on earth, and we met a band of cattle. Not a regular band of cattle, but a lot of silly, slow, pokey cows, that are sure to run just exactly opposite from the way you want them to go. I managed to get by all but six who thought they understood the rules of the road better than the "auto" owners did. In a second after I passed the cows I reached a piece of turnpike road and met or rather saw another machine coming toward me, at a decidedly rapid rate. In watching the approaching machine, I failed to notice that three more cows were ahead of me and that I was also quickening my rate of speed. As the other automobile was within a few feet of me, one of the noble animals whom we call our friends waltzed out of the bushes in which she had been patiently waiting and started to cross the road. What prompted that cow to cross the road I shall never know, but I do know this much—that that big automobile struck the cow and knocked her over directly in front of me and I ran over her. Before I could stop I had poor bossy pinned securely between the four wheels of my auto, and the other machine was ditched—almost turned turtle. My friend had nothing to hold on to so consequently feet and ruffled skirts were sailing around the air. The flywheel revolved twice after the switch and gasoline had been turned off. Cow hide was very much in evidence and the front of my vehicle was about as badly mutilated as is possible to imagine. Machine bobbed up and down and I tried my best to console the cow, who made repeated efforts to upset the rig. Finally the driver of the other car with the assistance of another member of our club managed to liberate the poor cow, who started for the side of the road and began to eat grass.

I was extremely fortunate, my engine starting at the first turn of the crank, but not so the other one. Steering knuckle and brake-rod were bent double and if ever there was such a thing as a bow-legged automobile that one was it. I reached home safely, but the poor cow had to be killed.

As to my other experiences, of course I have had the same as everyone else. I have been "towed in," and sometimes I have "walked in." I have been batted and everlastingly kicked with the starting crank, and I have taken "headers" and "feeters," and almost every other kind of an "er" imaginable out over the front of my rig. I have broken down at seven o'clock in the morning and had to wait until twelve that night before I could reach home. Sometimes I am wet through and sometimes I am choked to death with dust, but I would not give up my auto for all the horses in the country. I have the distinction of being the only woman running an auto in Humboldt County, and I certainly enjoy it.

EMILY L. FOSTER.

Eureka, Cal., Nov. 15, 1904.

The Rubber Output

Figures that just have been made public show the world's rubber production for the season of 1903-4 to have been 67,314,591 pounds—an increase over the production of 1902-3 of only two per cent. Approximately, one-half of this output went to the United States and the other half to Europe. It is calculated that the 33,253,109 pounds that came to this country would make 116,182 sets (four in a set) of 30 x 3½ tire casings.

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253-5 Jefferson Avenue, Detroit, Mich.

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Auto Equipments, Extension Tops, Three-Bow Leather and Rubber Canopy Tops, Capetown Tops, Seat Upholstering, Storm Boots and Aprons, Auto Covers.

ALUMINUM CANOPY TOPS



We have without doubt the lightest, nobbiest and most durable tops on the market. All canopy tops equipped with glass fronts. Oldest canopy builders in America.

Write for Catalog.

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Motor Clothing, Liveries and Accessories

Gentlemen's Fur and Fur-Lined Overcoats, adapted for general or Motor wear. Special Fur-Trimmed Livery Overcoats for Chauffeurs and Coachmen.

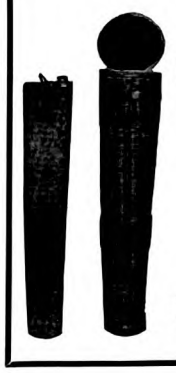
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from natural black dogskins for men and women, also fine leather gauntlet gloves, fur coats and robes. Booklet on request.

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You Can Appreciate This

Carry extra gasoline supply safely and out of the way. Galvanized tanks hold 4 gals.

Patent applied for.

Send for Catalogue.

Rattan Novelty Co.
Springfield, Mass.



Do You Slip or Skid?

THE WEED CHAIN TIRE GRIP

will positively prevent skidding even in snow and on ice and will not injure the tire.

Easily and quickly adjusted. *Send for booklet.*

WEED CHAIN TIRE GRIP CO., 28 Moore St., N. Y. City

HIGH-GRADE LAMPS

Acetylene Gas and Oil

ATWOOD MFG. CO.,
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Standard Motor Construction Co.

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Send for Catalogue of Automobiles and Auto-Marine Engines. . . . .

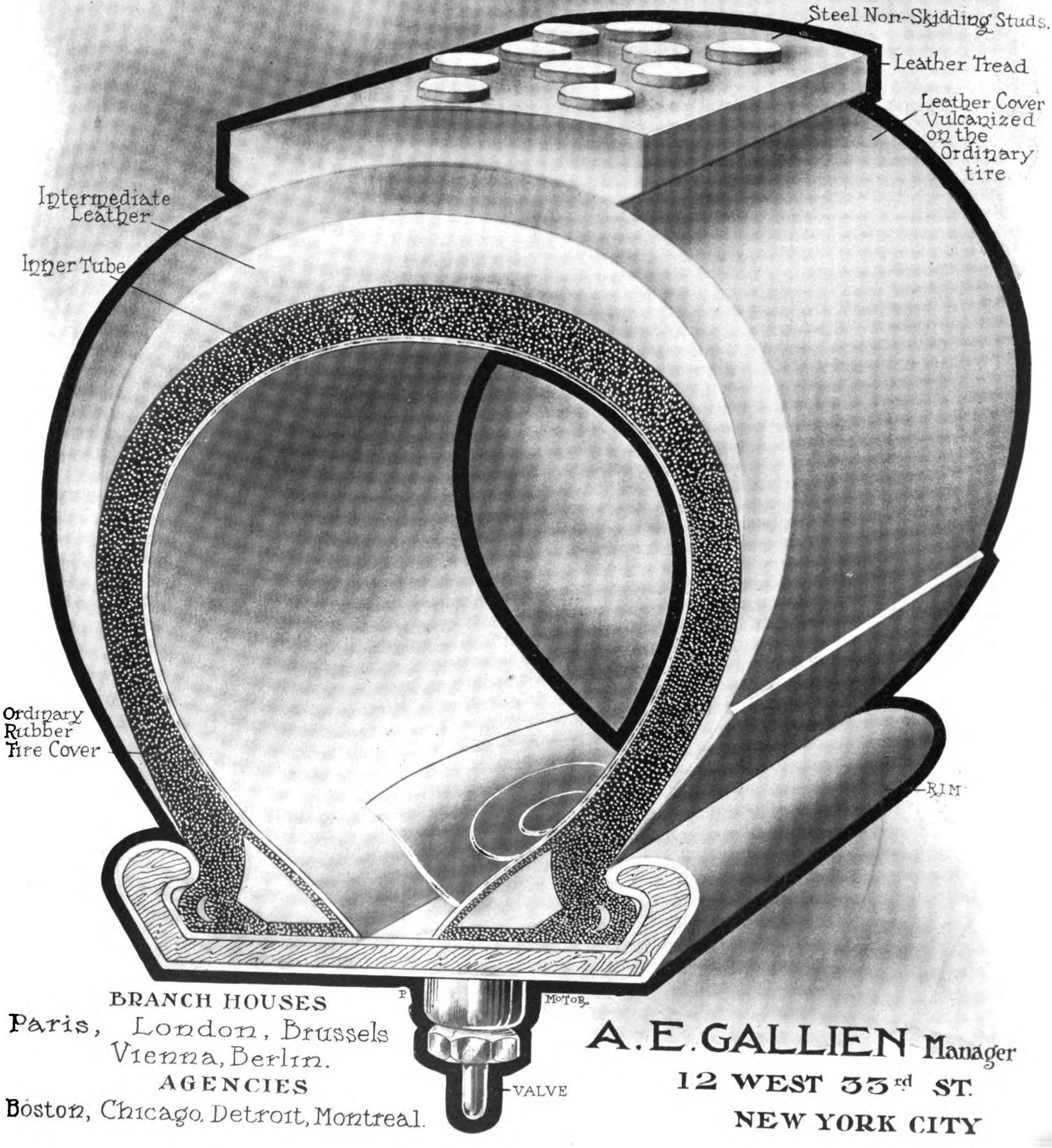
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MICA SPARK PLUG



Our new 1905 Model is nearest to Sootproof of any plug made. Price, $1.50 each. Manufactured by
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Automatic Volt-Ammeter
Is designed and calibrated especially for testing batteries on gasoline automobiles and launches and for any other use of like capacity. Accurate and substantial. Ampere reading made simply by pressing button. The most convenient and complete battery tester on the market.
Volt-Ammeter, $6.00 Amperemeter, $5.00
Atwater-Kent Mfg. Works, 103 N. 6th St., Philadelphia, Pa.

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NON-SKID LEATHER COVERS
applied to
Continental, Michelin and all Makes of American Tires



Patented Dec. 30, 1902.

We are rubber tire *experts* and can do much better work in repairing and applying rubber and leather treads than so-called tire repairers who have no knowledge at all of re-covering and rebuilding shoes and covers. Inner tubes repaired like new. *Non-Skid Leather* covers applied to solid cushion and single tube tires.

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The Republic Rubber Tire and Shoe Co.
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AUTOMOBILE
PUMPS
Write for Circulars
UPTON MOTOR COMPANY
LEBANON, PA.

FROM BAY SHORE, L. I., TO NEWPORT, R. I.

I will tell of a run in our Autocar. Myself and family started from Bay Shore, L. I., our objective point being Newport, R. I. After starting at 9 a. m., we had a most successful run through Islip, Oakdale, Sayville, Bayport, Patchogue, Bellport, the Moriches, Quogue, Good Ground, the Hamptons to Bridgehampton, thence to Sag Harbor, taking the steamboat Orient for New London, Conn., and having a most delightful sail over the Sound. We had to empty our ten-gallon tank of gasoline as none was allowed on the boat. At 4 o'clock we arrived at New London, refilled our tank, and then crossed the Thames River by ferry and made Mystic, where we put up for the night. Early the next morning we started again, rode all over Stonington, that quaint old town, then on to Westerly, R. I. We found much sand and poor roads and hills, but no trouble in getting through and over them. At Westerly we ran down to Watch Hill, about six miles. Our next run was to Wakefield, via the post road—which we found very good, being the finest of macadam roads —about fifteen miles. We arrived at Narragansett Pier at 4 o'clock, then ran down to old Point Judith, thence back to the Pier, where we put up for the night at Green's Inn. Early the next morning we started for Newport, running north to Saunderstown, via ferry to Jamestown, then another ferry to Newport, next a run of the "ten-mile" ocean drive and over Newport, and then the same route back again to Narragansett Pier for the night.

Next morning we started on our return trip via New London, Old Saybrook, crossing the Connecticut River on the *Lady Fenwick*—just about large enough to carry our motor car—then ran to New Haven for the night. The next morning at 10 o'clock we started for New York, through Bridgeport, Stamford, etc., over fine roads, arriving at our New York residence before dark. Next morning we started for Bay Shore, L. I., our starting-point. During the whole journey of six days, our Autocar never missed a spark and no trouble of any kind occurred.

New York, Dec. 2, 1904. C. H. COVELL.

SIMPLER MOTOR LANGUAGE

The letter recently appearing from "An Ardent Automobilist" was very interesting and expressed views in accordance with many who have occasion to use frequently the French words "garage" and "chauffeur." All words should be (1) short, (2) easily pronounced and (3) distinctive.

American words generally fulfill the first two conditions, but fail in the last one. The English or American word "motor" is not a distinctive name for an automobile, because it also means several other things. French words are distinctive generally, but at the expense (for Americans) of the other qualities.

Therefore, I suggest that you "start the ball rolling" by holding a contest for the coinage of new words for "automobile," "garage" and "chauffeur." The coined words are to have the three qualities named and can be taken from any language.

A substantial cash prize to the winner would, I think, tempt some of our literary friends to make the attempt. It would at least make a very interesting contest.

Of course, I realize that even if all the automobile papers adopted a substitute for "automobile," "garage" and "chauffeur," the practical benefits would be a trifle doubtful because the word-creating and all-powerful medium of slang will probably come to the rescue sooner or later. But, on the other hand, new catchy words, properly introduced, might take the popular fancy.

Detroit, Dec. 1, 1904. A. E. S.

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INSURANCE
AGAINST LIABILITY FOR DAMAGES FOR INJURIES TO ANY PERSON.
AGAINST THE HAZARD OF EXPLOSION OR FIRE FROM ANY CAUSE, WHILE AUTOMOBILE IS EN ROUTE, OR IN ANY PLACE IN THE UNITED STATES OR CANADA.
ALSO, PERSONAL INSURANCE FOR DISABILITY, INJURY OR DEATH DUE TO ACCIDENT FROM ANY CAUSE WHATSOEVER.
LOWEST RATES
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66 PINE ST., NEW YORK



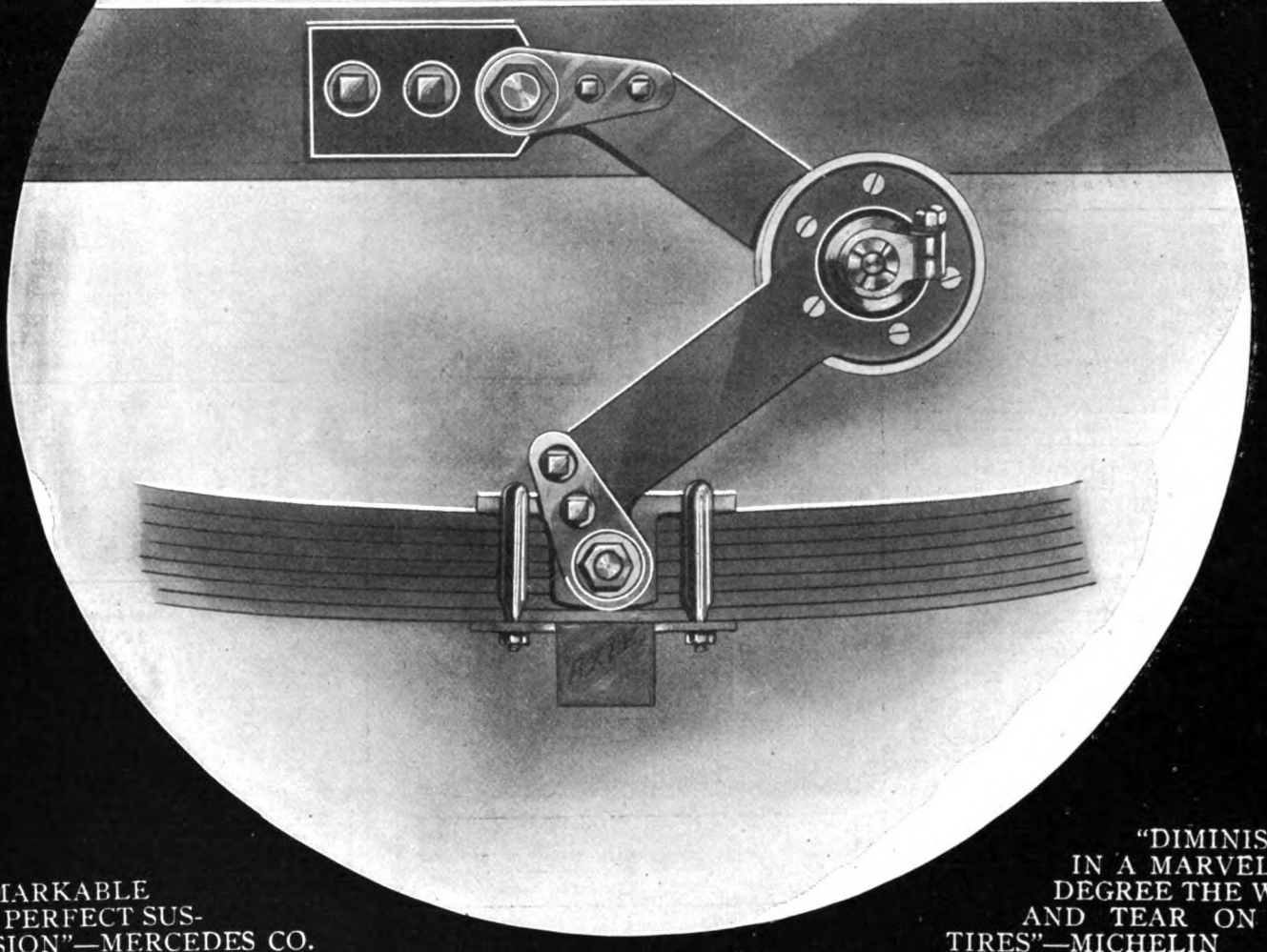
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An Illustrated Booklet
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No. 100 William St.,
New York City.

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UNIVERSALLY CONCEDED TO HAVE WON THE GORDON BENNETT CUP IN 1904

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"REMARKABLE AND PERFECT SUSPENSION"—MERCEDES CO.

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When ordering your new 1905 car insist that it be equipped with the

HARTFORD SHOCK ABSORBER

NO Jumping of the car on rough roads.
Danger of the breaking of springs.

YES It saves the tires.
It's reliable, durable and easily attached.

Having received many complaints as to the exorbitant charges made for attaching SHOCK ABSORBERS, we wish to state that we will equip any car with same in the most thorough manner WHILE YOU WAIT, at our NEW FACTORY, No. 390 HUDSON STREET, N. Y. CITY, for the nominal sum of $10.00.

Send for Further Information and Prices—Prompt Deliveries

HARTFORD SUSPENSION CO.

E. V. HARTFORD, President

67 VESTRY STREET, NEW YORK CITY

P. MOTOR

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STA-RITE
"STAYS RIGHT THE LONGEST."

How would *you* like to go

10% FASTER?

It makes all the difference in the world whether you have the right length plug or not. We have 6 lengths in our ½", 21 sizes in all. $1.25 to $4.00. Be sure your plugs extend *in* far enough, and do it right away. Plugs stay right the longest which have "Sta-Rite" on the shell.

The R. E. HARDY CO.
225 W. Broadway, New York City
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Special discount to the trade.
Best goods, lowest prices.
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SHAIN'S AUTO WIRE TERMINALS
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Everything Else for Autos.

CANDY CARBIDE
For FRENCH AUTO LAMPS (Impregnation dans le vide)
Packed only in 10 lb. cans. Price, $2 each.
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In stock, all kinds of imported Lava BURNERS (BRULEURS) for Acetylene Auto-Lamps.



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WHISKEY
IS THE BEST



THE
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MAGNETIC
LIQUID INDICATOR.
FOR AUTOMOBILE
AND
LAUNCH GASOLINE TANKS.
OPERATED UNDER PRESSURE
OR WITHOUT PRESSURE.
SHOWS AMOUNT OF GASOLINE IN TANK.
MADE TO APPLY TO THE
FILLER OPENING OF ALL
MAKES OF AUTOMOBILES.
CAN BE PUT IN ANY TANK.
IN A FEW SECONDS WITHOUT
TOOLS. WRITE FOR CIRCULAR
PERFECTED. GUARANTEED.
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(SPECIAL INDICATORS FOR ANY KIND OF LIQUID RECEPTICAL)
R. & C. INDICATOR CO.
BRIDGEPORT, CONN. U.S.A.

STILL WANTS A MOTOR CAR

As per your request for motor experiences, I herewith send you mine, not with pleasure, but with a heavy heart and a lightened bank account. I purchased a ————, and paid for the outfit a thousand dollars. I operated it five months. I found by that time that I would have to discover some way in which to double my income, or sell out. I sold. Then I took a pad and figured. My entry into motoring had cost me $200 per month for five months. That is my experience. My conclusion is, that any one who will sell such a vehicle as I bought will commit highway robbery. But I must have another motor car of some kind, that is sure. I would not now take the best horse on earth as a gift if I had to drive it, and I can never be happy until I own another motor car. When speed ceases to be the first requirement and strength takes its place, then I hope to own once more a self-propelling vehicle. One thing is sure, however, it will under no circumstances whatever be a car of other than standard make, or one poorly adapted to the service required of it.

MECHANICO.

ONE SOLUTION OF A DIFFICULTY

I will relate an experience I had with a two-cylinder Rambler. Leaving New Haven for Boston one morning about 10 o'clock, I made Guilford with a few misfires, which developed, after leaving that place, to such an extent as to make running practically impossible. By experimenting, I found that the car would run on one cylinder without any missing. I removed the plug of the forward cylinder, cut out the coil on that side, and managed to cover about 18 miles until I secured new batteries. I repeatedly attempted to run on two cylinders, but each time found the batteries were not strong enough to supply the two, and relate this experience as a suggestion to owners of multiple cylinder cars, that, in case of weak batteries, they may possibly, by relieving the compression on one or more cylinders, succeed in making way without a great deal of inconvenience, until they are able to secure new cells.

S. E. CAMPBELL.

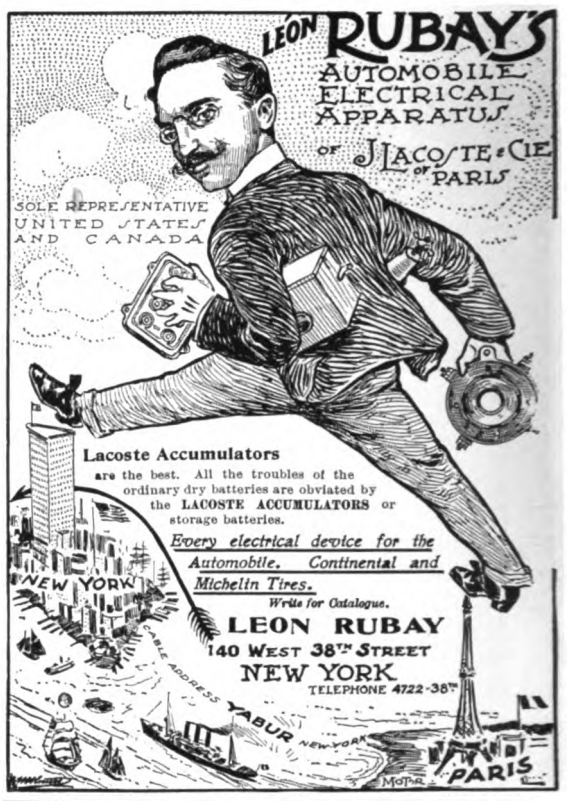
New Haven, Conn., Dec. 5, 1904.

NO PLACE TO KEEP IT



"Say, why don't you git an automobile, W'eary?"

"I would, only I ain't got no place ter keep it."





1905 Designs in . . .
Auto Baskets
AND Hampers
George R. Taylor Co.
Manufacturers, Springfield, Mass.
NEW CATALOGUE READY WRITE FOR IT

AUTOLYTE GAS LAMPS
THEY LIGHT THE WAY
SEND FOR BOOKLET
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We Manufacture the Only
PUNCTURE PROOF
INNER TIRES
in the world. Save money and trouble. If tires are punctured the air cannot escape. When ANTI-PUNCTURE TIRES are on guard you have no anxiety. Not necessary to pump up. Do not have to be careful. ANTI-PUNCTURE IS WATCHING PUNCTURES.
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Order your Body Work of
LAMPLUGH
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N. B.—Your order will be turned out at the time agreed upon.
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A PERFECT IGNITION OUTFIT ALWAYS BEARS THE NAME.....
SPLITDORF
BEAR THIS IN MIND WHEN YOU ARE LOOKING FOR SUCH.
C. F. SPLITDORF, 17-27 Vandewater Street New York, U. S. A.



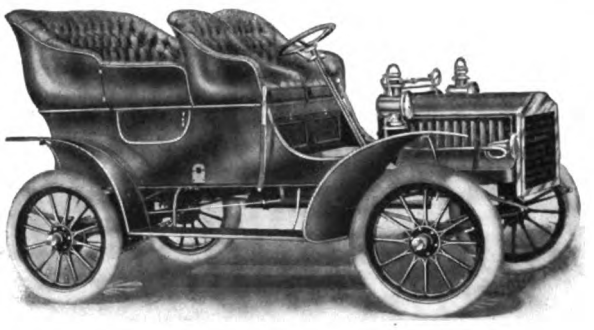
THE WORCESTER TOP
With robe-rail and storm front. Patents pending.
H. J. RUSSELL
Worcester, Mass.
"The Top with the Telescope Bow."

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THE MICHIGAN



THE CAR OF POWER



Model "E" ~ Price $1250
Carries Five People Easily

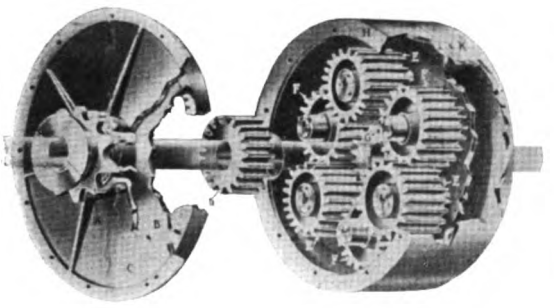
The 1905 Michigan Cars

are superb pieces of motor car mechanism. They are provided with a 14 horse power, double opposed motor, capable of carrying the car and its five passengers almost anywhere. They have great speed and hill climbing ability. They will take you as fast as you dare ride in the city or ought to go on country roads. They are roomy and comfortable. They are handsome in design and shape. No crudities or freakish peculiarities. One never need apologize for driving "such a looking thing as that." They are well made throughout—good materials and first-class work. If you are looking for a real *good* car at a fair price, what more do you want?

Shall be pleased to show you these cars at the New York or Chicago Shows, or send our complete catalog on request. Let us serve you.

MICHIGAN AUTOMOBILE CO., Makers KALAMAZOO, MICH.

P MOTOR

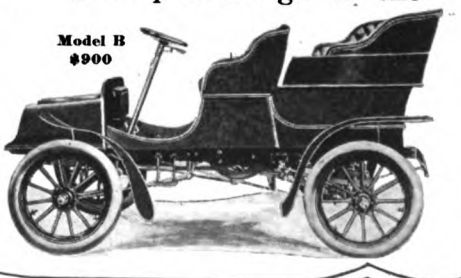


The Best Transmission

Most automobile troubles arise in the transmission case. The transmission of the Cadillac has solved one of the most difficult problems of the automobile. It insures perfect running, reduces cost of maintenance and repairs and gives greater power. It is simple, strong and noiseless. Every part of the

CADILLAC

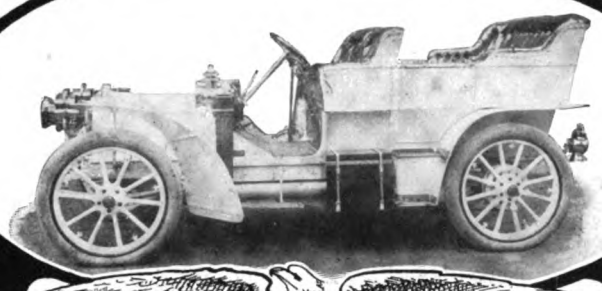
is built with care, thoroughness, and precision. The result is extreme durability and absence of annoyance to the operator. The speed range of the Cadillac is from four to thirty miles an hour, the maximum speed being easily maintained with four passengers. Let us send you Booklet S and give you the name of the nearest Cadillac agency where you can satisfy yourself that nothing at double the money equals the Cadillac. Prices, $750 to $900.



CADILLAC AUTOMOBILE COMPANY, Detroit, Mich.
Member Association Licensed Automobile Manufacturers.

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THE MARTINI



MARTINI

The Martini Car—the famous Swiss motor car—can be seen at the Importers' Automobile Show, Herald Square Exhibition Hall, New York City, between Jan. 9th and 25th.

1905 MODELS

16-20 horsepower
18-22 horsepower
30-40 horsepower

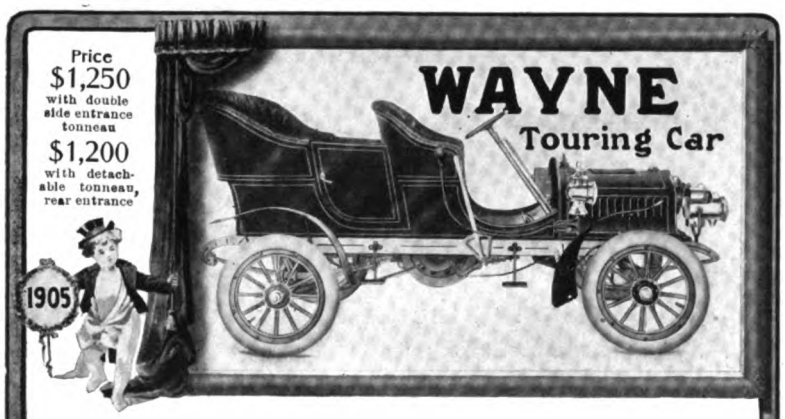
Come to See for Yourself.

PALMER & CHRISTIE 239 WEST 50th ST. NEW YORK

P MOTOR

Price $1,250 with double side entrance tonneau

$1,200 with detachable tonneau, rear entrance



The Wayne

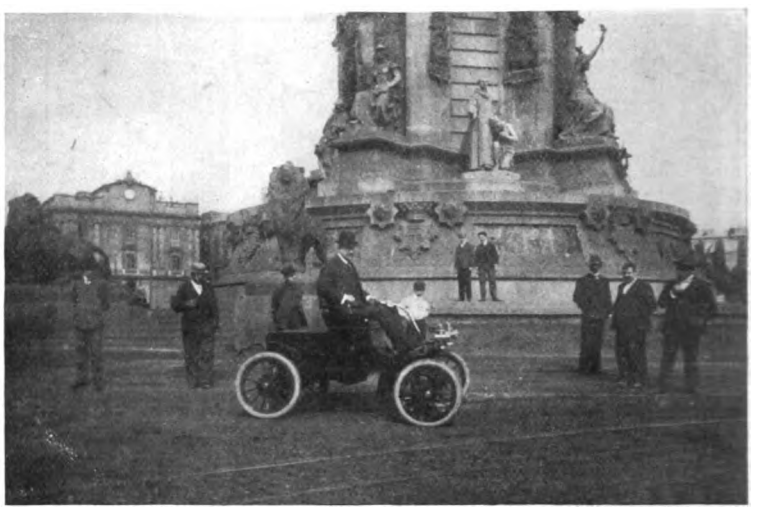
is an attractive, serviceable car for people who want an automobile for practical use. The 16 H.P. motor has two opposed cylinders, the transmission is of the planetary type and the whole mechanism is as simple as can be made. The 90-inch wheel base ensures comfort in riding over any road. The compression in the Wayne engine is low, so that on the return stroke the pistons do not have to overcome the high compression found in most cars.

This makes the Wayne a great hill climber and by economy on wear and tear insures long life to the engine.

We shall be glad to demonstrate the merits of our cars at the New York and Chicago shows or to send our catalogue to those who appreciate quality and reliability at a moderate price. Will you write us today?

The Wayne Automobile Co.

Dept. M Detroit, Mich.



THE OLDSMOBILER, JOHN L. POOLE, IN BARCELONA, SPAIN

THE MOTOR IS SNOW KING

By Avant Courier

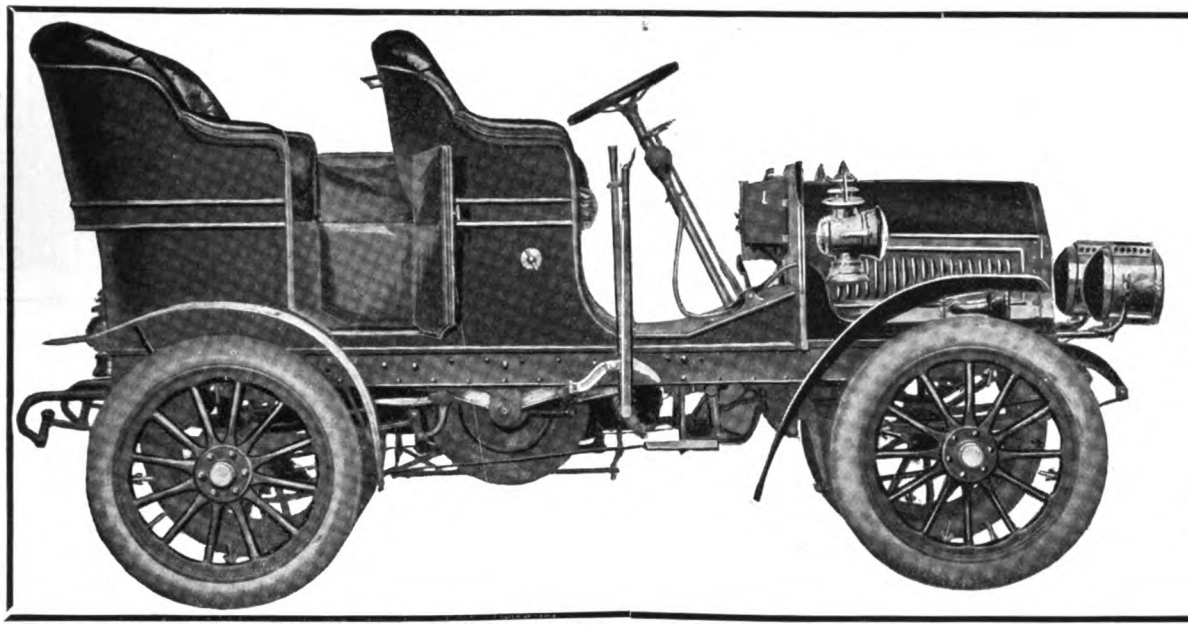
The motor is finding itself, in the sense of Kipling's ship. It is settling down into its rightful position in relation to its capacities to be helpful. In no domain is it making a place so far ahead of any other method of locomotion, as in its adaptability in winter, when our roads and streets, in all the North and East, are snow covered, and traffic of merchandise and for pleasure are the heaviest of the year in all our cities and suburbs. I had a whole day's opportunity to study the subject when the first snow fell in the first days of December, in one of New York City's busiest asphalted streets, an artery which leads not only from the abodes of the "Four Hundred" to the great shopping centre, but also connects the Four Hundred Thousand with a central railroad depot. The test was a trying one, and from the moment the first flakes fell in the morning and glazed the surface until late at night, when the snow was banked high, the victory in every department and with every class of vehicles was so absolutely with the motor that the answer given to the enquirer "where is the second" in the first America's Cup race, is the only one applicable: "There is no no second." While all horse traffic was either at a standstill, exhausted, or the poor quadrupeds were glissading in all directions in frenzied struggles to stand or move, when the stages slid along slowly with skidded wheels, when even the sure-footed mule shifted over to the snow heaps in the gutter to be safe; motors in every direction seemed to be endowed with wings, and passed on, and wove in and out the obstructions as gracefully as an accomplished dancer in the mazes of a ballroom. Even the ten-ton wagons, laden to the roof with carpets or barrels, or what-not, passed on with the ease of a skater; and on hills that not even the most venturesome teamster dared climb or descend, at peril of his own and his horses lives, motor cars of many kinds coasted up and down, exulting in free roadways on which there were no horse outfits to iterfere with free running. Winter is the motor's triumph. It enfranchises society, it frees the merchant from the dire necessity of submitting the horse to cruelty, and obviates vexatious delays in transportation. Hours of observation over miles of traffic did not disclose a single variation from uniform success.



DR. H. F. THOMAS, THE CHICAGOAN, FOR WHOM THE LOCOMOBILE COMPANY IS BUILDING AN INTERNATIONAL CUP RACER. IN THE REAR SEAT ON THE LOCOMOBILE IS GOVERNOR DENEEN OF ILLINOIS

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1905 STUDEBAKER Gasoline



Side entrance two-cylinder Model 9502 Price, $1650

Or with rear entrance $1600

The Studebaker Electric Victoria Phæton is ready, and is without question the handsomest machine of its type ever constructed.

Style. This is best appreciated when it is compared with other cars.
Size. Capacious seats and ample leg room for five occupants.
Finish. In upholstery and appointments it is fully equal to the highest priced cars.
Special Features The least vibration in any car of its class. All working parts easily accessible and well protected. A full oil tank keeps the car thoroughly lubricated. Ample locker space for baggage. A 10,000 mile test applied to each of several cars selected at random, brought no accident and revealed no flaws. **Every part of this car is "Studebaker" quality**

Control. The method of control is the simplest and surest, known in automobile practice, and is within the ready comprehension of an inexperienced person. An improved form of planetary change gear does away with the complicated trains of gears. Speed may be regulated at will by a foot lever, leaving both hands free for steering. Brakes act simultaneously on reaf axles and rear wheel hubs. One turn of the crank starts the engine.

For complete details write for catalogue.

See Our New Four-Cylinder Car in Next Issue

Studebaker Automobile Co., South Bend, Ind.

Member Association Licensed Automobile Manufacturers

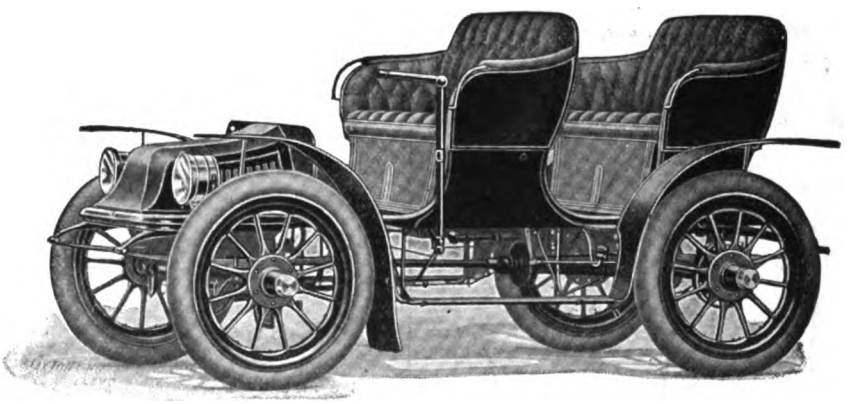
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The Name BAKER Stands for Distinctive Quality Classification, the Highest Type of Electric Carriages

Simple, Silent, Safe, Clean, Satisfactory



Costs Less to Maintain than any Automobile Made

The **BAKER SURREY**

Weight, with Passenger Load, 2200 Pounds
Motor, 2 1-4 H.P.
Battery Equipment, 24 Cells

THIS motor is the same size and possibly less and the battery is the same weight and size and possibly less than other electrics require for two-passenger stanhope or runabout that speed no faster nor make more miles on a single charge of battery. NOTE this as an illustration of what we mean by superior practical efficiency of Baker construction.

WE MAKE RUNABOUTS, STANHOPES, DOCTORS' CARRIAGES BASKET SEAT, CANOPY TOP, ELECTRIC *Send for Catalog*

The Baker Motor Vehicle Company, CLEVELAND OHIO

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Invest one penny and get dollars in return

Our 1905 Catalogue is now on press, send us your name at once so we can add it to our mailing list.

It contains everything that is of interest to the motor car owner and dealer, and is the most complete volume on motor car accessories ever issued.

THE EXCELSIOR SUPPLY CO.

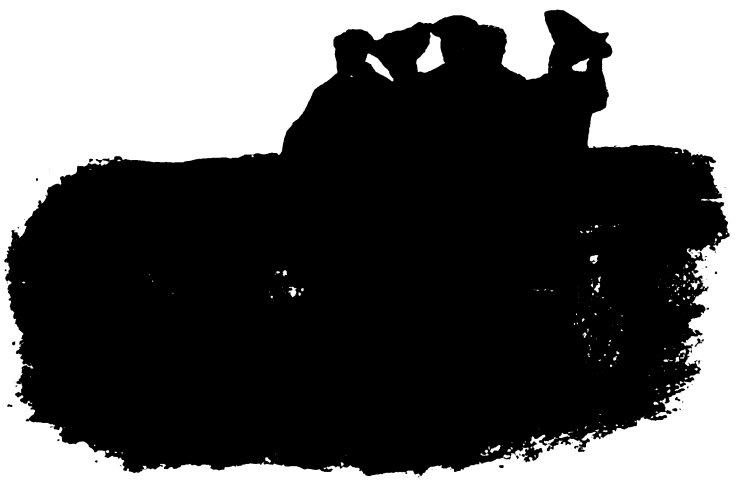
233-235-237 RANDOLPH STREET, CHICAGO, ILL.

The Old Reliable

Waterless Knox Cars

for 1905

Higher in Quality, Lower in Price than ever before. Superb in Style and Finish.



Two-cylinder machines as quiet and as smooth working as four-cylinder with only half the complications.

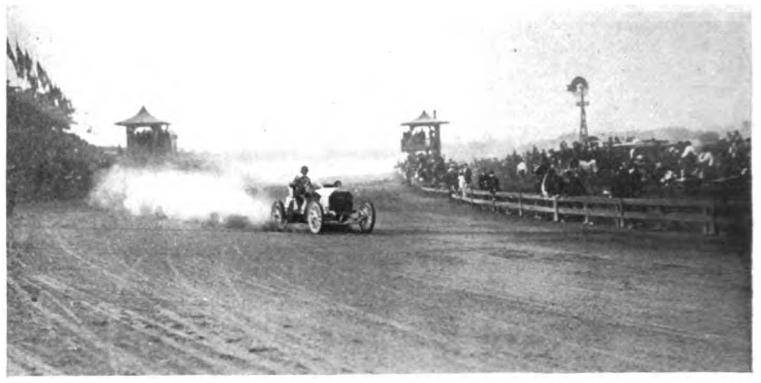
14-16 H. P. Side door Tonneau	$1,900.00
14-16 H. P. Convertible Surrey	1,750.00
14-16 H. P. Folding front seat runabout	1,500.00
Single cylinder folding front seat runabout	1,250.00

Waterless Knox Automobiles awarded the grand prize at Louisiana Purchase Exposition.

KNOX AUTOMOBILE CO., Springfield, Mass.

Members Association Licensed Automobile Manufacturers.

Agencies in all Principal Cities



TARRED SURFACES OF ROADS

What does it cost? That is the question which governs the adoption or rejection of all suggestions for improving roads; and that is just the information which is seldom stated with sufficient exactness. Recently a glowing account of the benefits derived and the evils mitigated by tarring the Avenue de Grand Armee and the Boulevard Maillot in Paris, contained not a word indicative of cost. It is, therefore, a singular satisfaction to learn the exact details of a similar experiment carried out on the great Plymouth Road in England by he Epson District Council. They strewed the tar produced by a local gas works, piping hot, over the surface of a portion of an ordinary macadam road, about half



a mile long, in all measuring 7,500 square yards, at a cost of three cents a square yard, or, if the width of the road is allowed at 21 feet, at a cost of about $320 per linear mile. This dressing protected the road from all wear; at the end of six months there was not a loose stone on it; and as it was during all the summer absolutely free from a particle of dust, it was unnecessary to use the water cart. The elimination of the water cart saved in labor and horse hire more than twice the cost of the tarring; to say nothing of all the other benefits to pedestrians, motorists, horsemen, cyclists, and tradesmen's stocks. Hail to the tarred road! and to reliable and officially verified facts relating to the operation.

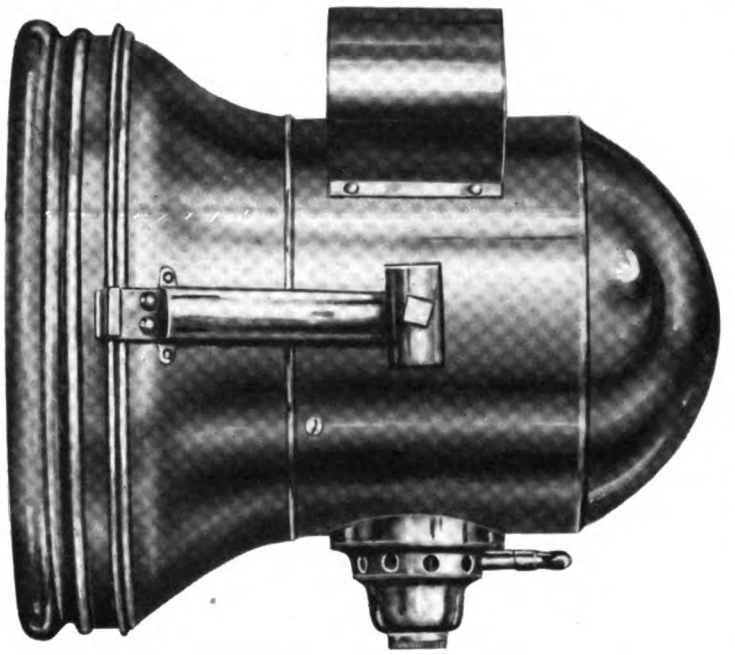
In spite of the fact that this country has the worst roads of any civilized country, the automobile is making rapid progress in its use. Road improvement is going on, but at a pace we hope to see accelerated in the near future. The automobile as a vehicle of sport and utility has many things to commend it, especially the fact that it takes people out of doors and it is a significant sign of the times that numerous hotels are already advertising accommodations with a view to securing trade from automobilists. With more good roads there will be more good hotels to take care of the people who go out from the cities in automobiles and other conveyances for the purpose of securing fresh air and enjoying the beauties of nature..—*Good Roads Magazine.*



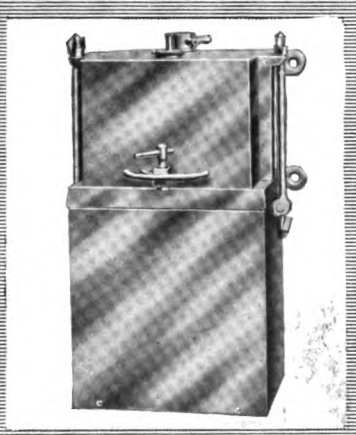
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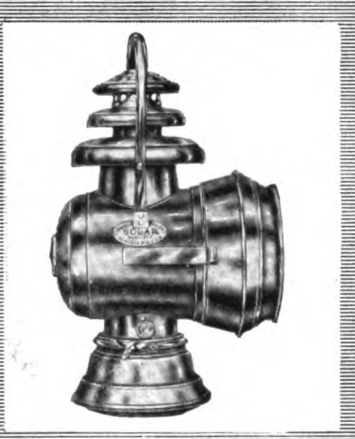
The GOLD MEDAL AWARDED SOLAR MOTOR LAMPS

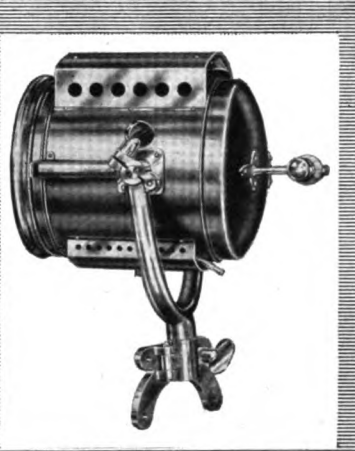
SHOW THE WAY AND ALWAYS SATISFY



TURN NIGHT TIME INTO DAYTIME







SOLAR LAMPS HELP SELL CARS

It pays to equip your cars with Solar Lamps—we see to it that the buyer knows of Solar supremacy. It's the one lamp and generator that's sure to satisfy—the one lamp that's sold on a guarantee that means something. Made by the world's biggest, most modern manufactory of acetylene and oil auto headlights, side and tail lights, cycle and motor boat lamps. The 1905 Solars are ready now for your inspection. Stick to the Solar—patents, plant and policy miles ahead of blatant but imitative rivalry.

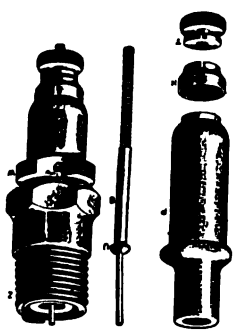
Made by the MOTOR CAR OPTICIANS

BADGER BRASS MFG. CO. Kenosha, Wis., and New York City

P. MOTOR

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BEWARE!



It's an old established fact that the most successful articles on the market are those that are copied by the manufacturers of similar goods who lack the brains to originate. That's why the

"SOOT PROOF" SPARK PLUG

is receiving so much attention at the hands of this class of manufacturers. Of course, our plug is fully protected and it will be a matter of only a short time until we will punish the thieves.

In the meantime

DON'T BE DECEIVED!

They may copy the model, but the results cannot be copied.

Price, $2.00, postpaid

C. A. MEZGER, M.E., 203 W. 80th St., New York



(White Car Fitted With St. John Non-Puncturable Tires.)

The tire which solves the most vexing problem presented to motorists. This Tire is always ready. Requires NO INFLATING. Cannot be punctured. Costs less, more resilient and requires less power to drive than the pneumatic.

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WEBB SPEED INDICATOR

"JUST HOW FAST"



2 MILES to 150 MILES

ACCURATE

RELIABLE

HANDSOME and ARTISTIC IN DESIGN

No car complete without it.

WRITE FOR CATALOGUE

THE WEBB COMPANY

477 Park Row Bldg. New York City.

Kingston Carbureter



PAT. MAY 12, 1903
OCT. 11, 1904.
Other Patents Pending.

OVER 23,000 IN USE

KINGSTON

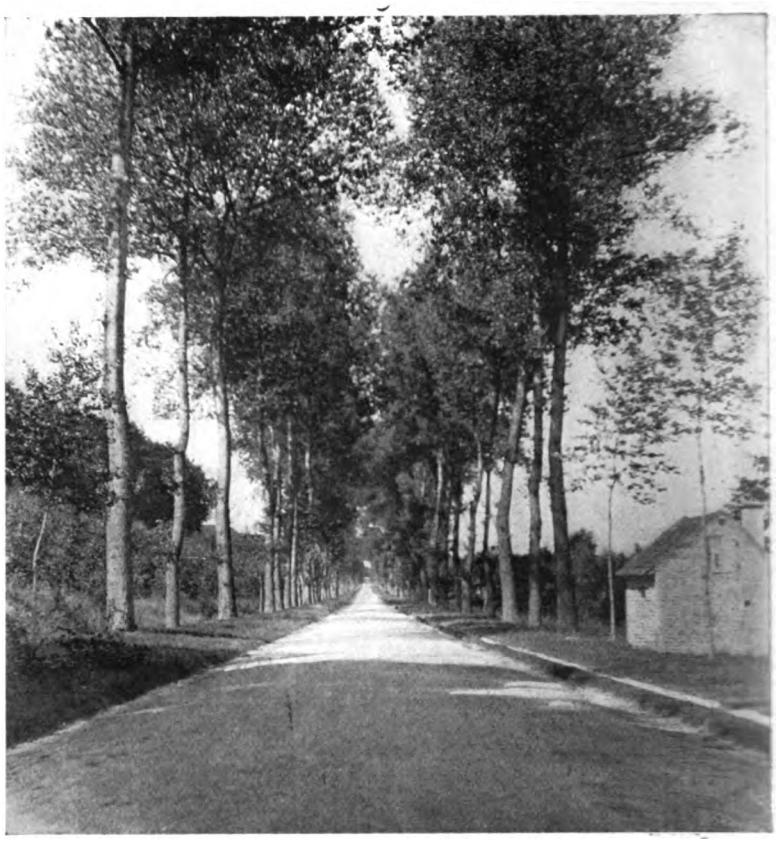
Carbureters, Mufflers, Spark-Coils, Spark-Plugs, Steering Wheels, Pumps, Oiling Devices, Etc.



BYRNE, KINGSTON & CO.

339-351 Smith Street

Kokomo, Ind., U. S. A.



A FRENCH ROAD IN THE FOREST OF COMPEIGNE

MOTORING ON THE ICE

American motorists will watch with considerable interest the motor races to be held on the ice during the carnival in the suburbs of Stockholm from February 4 to 12. Ice motoring on Lake George, Lake Champlain, and other northern waters, while in our Sunny South others are speeding on the silvery sands of the Floridean sub-tropics, would be an object lesson on the width of the scale and the multitude of the motorist's opportunities at home.

There is a probility that before the winter is over there will be some motor speeding on the upper Hudson river above Poughkeepsie. Several enthusiasts have prepared plans with this object in view.



A LOCOMOBILE PARTY ON A CALIFORNIA HIGHWAY

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Highest Grade of
Fur and Leather Garments
For
Automobilists



We carry the largest stock in America of Fur and Leather Garments for Automobilists. You will with us find everything you require for your comfort in an automobile.

Fur Coats from	$12.50—	$3000.00
Leather Coats "	7.00—	175.00
Leggings "	1.60—	16.00
Fur Boots "	6.00 up	
" Robes "	10.00—	500.00
Footwarmers "	5.00 up	
Leather Vests for Ladies and Gentlemen "	7.00—	
Goggles "	1.50—	
Veils and Hoods "	2.00 up	
Hats and Caps "	2.00—	135.00

See Our Exhibition at the Madison Square Show and at the Importer's Salon



Fur and Leather Gloves and Fur Caps
Combination Coats

SCANDINAVIAN FUR AND LEATHER CO.
16 West 33d Street, Opposite The Waldorf

Catalogue Mailed on Application **Only Store of Its Kind in America**



Automobile Apparel for Men & Women

To those who intend to make the pilgrimage to the New York Auto Show, our exhibit will be found of interest. It will afford the newest models of imported and domestic garments and requisites for men and women. At our shop we will conduct a private exposition which will embrace the most comprehensive and distinctive collection of automobile garments of fur, cloth, leather and rubber which this or any other country affords, to which you are also invited.



No. 5000.
Long Coat for Women.

WHERE storms are frequent and severe, this coat will be found of greatest service. If we were compelled to select a single garment for the sake of demonstrating to what degree it is within our province to provide inexpensive garments and yet maintain our high standard of tailoring, this is the model upon which we might depend. It is a double-breasted garment which fits quite snugly at the shoulders, and hips from which the skirt falls in graceful folds, making it of extreme width. The deep collar has a strap and buttons. The sleeves have deep cuffs; the full belt has pearl buttons. There are two pockets. Length 52 to 60 inches, in sizes 34 to 44.

a. Of Rubber, in black, unlined, absolutely waterproof . . . $12.50
b. Of Rubber, in white, unlined, absolutely waterproof . . . $15.00
c. Of Rubber, in black, unlined, with collar and cuffs of Danish leather, absolutely waterproof $15.00
d. Of Rubber, in white, unlined, with collar and cuffs of Danish leather, absolutely waterproof $17.50

No. 500.
Long Coat for Men.

THIS is one of the cleverest garments which has been designed for the Auto. The elastic rubber yoke and body of absolutely waterproof or showerproof material insures protection against rain, wind and dust. Length 49 to 54 inches. Your chest measure determines the size.

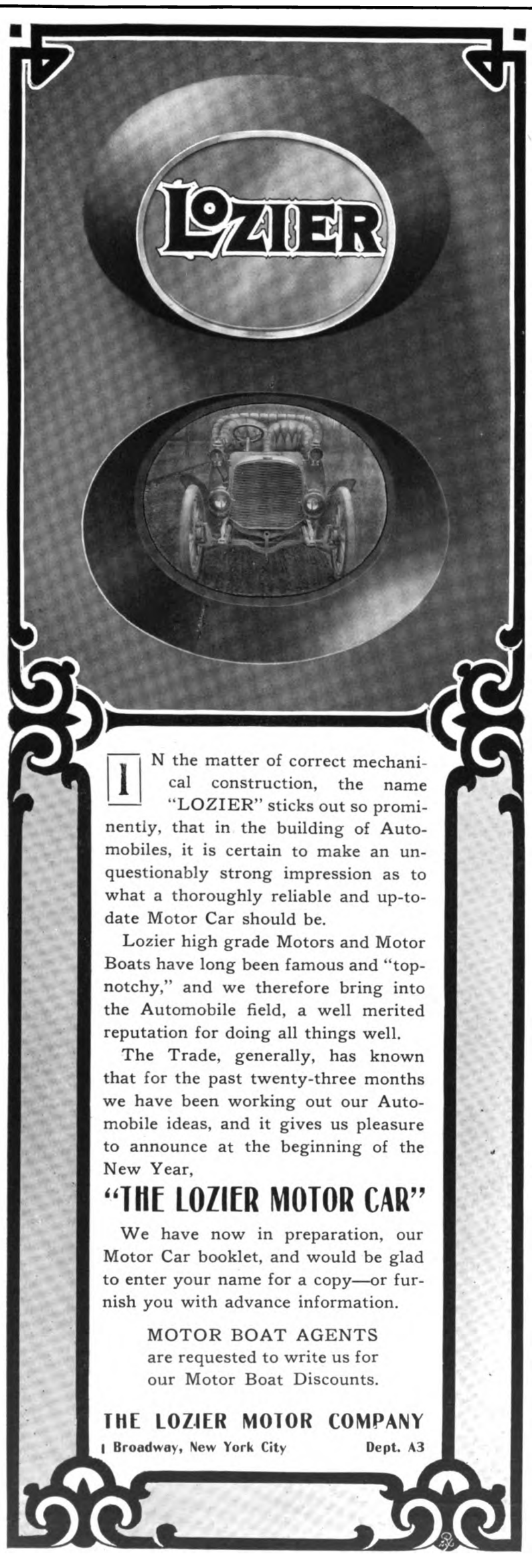
a. Of Rubber, in black, waterproof $13.50
b. Of Cambric Rubber, in black, lined with black cloth, waterproof $15.00
c. Of Cambric Rubber, in red, waterproof $17.50
d. Of Serge, in tan, gray or oxford, lined with plaid cloth, waterproof $20.00
e. Of Mohair, unlined, showerproof $20.00
f. Of Covert Cloth, in oxford or tan, waterproof $20.00
g. Of Serge, double texture, in oxford or tan, unlined, waterproof $25.00
h. Of Burberry Cloth, waterproof $26.50
i. Of Rubber, in red, light weight, lined, waterproof $26.50
j. Of Venetian Cloth, in drab or tan, unlined, waterproof . . $27.50
k. Of Rubber, in red or oxford, lined with red flannel, waterproof $30.00
l. Of Silk-Rubber, single texture, in plum, tan, gray, black, brown, pongee, changeable red, blue, green, gray or brown, unlined, waterproof $35.00
m. Of Box Cloth, in tan, brown or gray, lined with plaid cloth, waterproof $40.00

Saks & Company

We have issued a 273 page illustrated catalogue devoted to automobile apparel and requisites. Please send for it.

Broadway, 33d to 34th Street
NEW YORK.

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IN the matter of correct mechanical construction, the name "LOZIER" sticks out so prominently, that in the building of Automobiles, it is certain to make an unquestionably strong impression as to what a thoroughly reliable and up-to-date Motor Car should be.

Lozier high grade Motors and Motor Boats have long been famous and "top-notchy," and we therefore bring into the Automobile field, a well merited reputation for doing all things well.

The Trade, generally, has known that for the past twenty-three months we have been working out our Automobile ideas, and it gives us pleasure to announce at the beginning of the New Year,

"THE LOZIER MOTOR CAR"

We have now in preparation, our Motor Car booklet, and would be glad to enter your name for a copy—or furnish you with advance information.

MOTOR BOAT AGENTS
are requested to write us for
our Motor Boat Discounts.

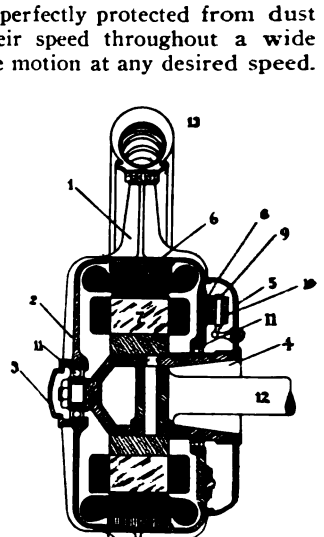
THE LOZIER MOTOR COMPANY

1 Broadway, New York City Dept. A3

A GASOLINE-ELECTRIC CAR

The Lohner-Porsche system of motor-car propulsion is to-day one of the most interesting in which it is sought to combine the simplicity and flexibility of the electric motor with the power and efficiency of the gasoline engine.

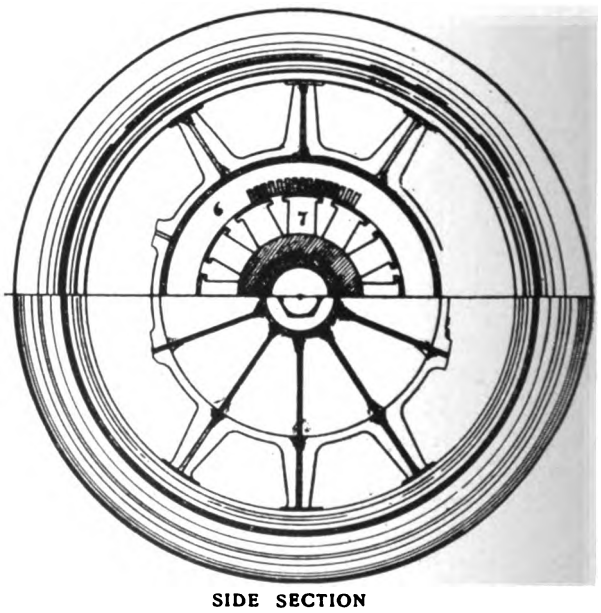
As is generally known, an electric motor car is driven by motors geared to its driving wheels and deriving current from a storage battery. In several respects such a system is ideal. The motors are small, light, and neat, and capable of being very perfectly protected from dust and mud. One simple lever controls their speed throughout a wide range, and another readily affords a reverse motion at any desired speed. An electric motor is capable of working for a short time under enormous overload; therefore, an electric rarely gets stranded as a result from bad going being capable of pulling out of almost any hole or rut in which its wheels can secure traction. The weakness of the electric is its battery, which is cumbersome, delicate, and expensive, and requires much time for recharging. The gasoline engine requires a speed-changing mechanism to provide it with sufficient flexibility to render it available for ordinary purposes. It also seems to require a rather large number of controlling levers and pedals.



CROSS SECTION

The Lohner-Porsche cars possess many of the merits of both gasoline and electric machines. An ordinary gasoline engine is mounted in front under a bonnet, but, instead of driving the car direct, it drives a dynamo that furnishes current to electric motors located within the road wheels. This extraordinarily simple system does away with the fly wheel—the armature of the dynamo taking its place—the change-speed gear, chains, propeller shafts, universal joints, and other elements of the usual power plant and transmission. The control is effected by means of a standard electric controller, acting directly upon the current supplied to the motors. The running of the engine is entirely automatic, its speed, and the consequent current output of the dynamo being always in proportion to the demands of the motors. If desired, the car can be built with a small storage battery included for the purpose of starting the engine without cranking, this being done by temporarily causing the dynamo to run as a motor, taking current from the battery. Such a battery is also useful for supplying the lights and the ignition system.

Not the least interesting feature of the Lohner-Porsche car is the arrangement of the motors within the wheels. As shown by the accompanying side and cross-section, the motor constitutes simply an enlarged wheel hub, and the drive is absolutely direct, without intermediate gearing. In the case illustrated, the motors are in the steering wheels, this arrangement being well known as a preventative of skidding. Ball

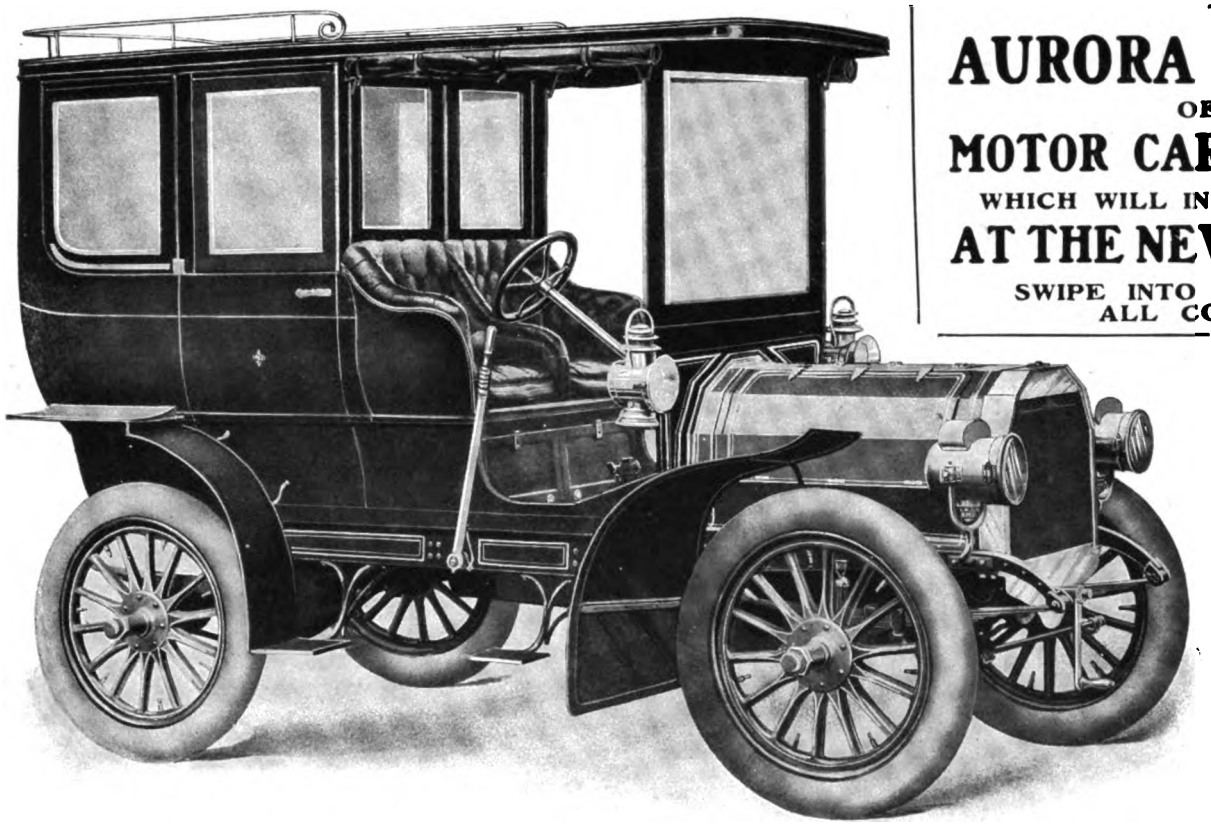


SIDE SECTION

bearings make the increase in diameter of the wearing surfaces not objectionable, and conduce to remarkably smooth running. The weight averages as low, if not lower, than that of a gasoline car of equal power.

The reference numerals on the drawings indicate the following: 1.—motor casing; 2.—cover plate; 3.—hub cap; 4.—steering knuckle; 5.—brush-holder ring; 6.—rotating armature; 7.—stationary field magnet; 8.—collector ring; 9.—brush holder; 10.—carbon brush; 11.—ball bearing; 12.—front axle; 13.—pneumatic tire.

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THE
AURORA BOREALIS
OF THE
MOTOR CAR FIRMAMENT
WHICH WILL IN ONE FELL SWOOP
AT THE NEW YORK SHOW
SWIPE INTO DIM OBSCURITY
ALL COMPETITION

A 114" Wheel Base, 36" x 4½" Wheel, 7 Passenger 36 H. P. Creation that is simplicity itself.

DON'T FAIL TO LOOK US UP IN THE EXHIBITION HALL OR IF YOU DON'T ATTEND THE SHOW ASK FOR OUR RÉSUMÉ LEAFLET AND PHOTOGRAPHS

THE ABOVE CUT SHOWS A FINE CAR BUT
OUR LATEST MODELS ARE STILL UP OUR SLEEVES

WELCH MOTOR CAR CO., DETROIT AND PONTIAC, MICH.



DURO
STORAGE BATTERIES

Users of DURO Accumulators are assured of a mileage guarantee obtainable in no other way

CHICAGO BATTERY COMPANY
1421 MICHIGAN AVENUE
CHICAGO

This Means--
Both Automobile and Metal Covered Ignition Batteries

WRITE US

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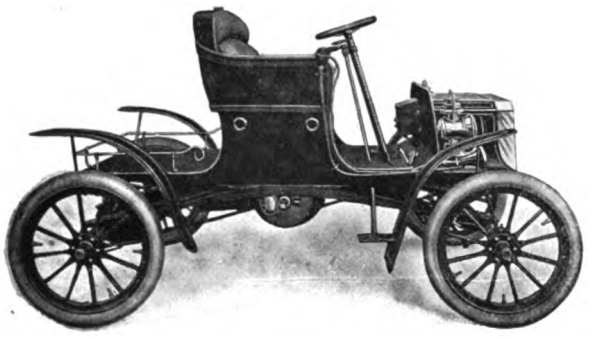
HAVE THAT RELIABLE FEELING

EXPERIENCED WHEN DRIVING A

BUCKMOBILE

FAVORED BECAUSE OF THEIR

POWER
CONSTRUCTION
STICKTOITIVENESS
AND
COMFORT ON AMERICAN ROADS



2 CYLINDERS **$900.00** 15 HORSE POWER

WATCH FOR NEW 1905 TOURING MODELS
IT WILL PAY YOU

BLACK DIAMOND AUTO. CO. UTICA, N. Y.
Eastern Pennsylvania Agency
660 NO. BROAD ST., PHILADELPHIA, PA.



The Worth of a Car is best shown

by its ability to climb hills. At the hill-climbing contest at Eagle Rock, N. J., last November, the $800 PRESCOTT was but 2-5 seconds behind an $8,000 French car, and was 10 2-5 seconds ahead of a $2,500 car.

40 h.p. Decauville (gasoline) 1 m. 37 1-5 sec.
7½ h.p. **PRESCOTT** (steam), 1 m. 37 3-5 sec.
15 *h.p. White (steam), 1 m. 48 sec.*

THE PRESCOTT 1905

is a steam automobile which has been proved of superior worth. It is especially adapted for doctors' uses. Quick to get ready; absolutely safe; speedy; will not freeze up; no hand pumping; has a patent vaporizing device for "firing up." Built for 2 or 4 people. Has a folding front seat.

With Victoria Top - - - $900
Without Top - - - - - $800

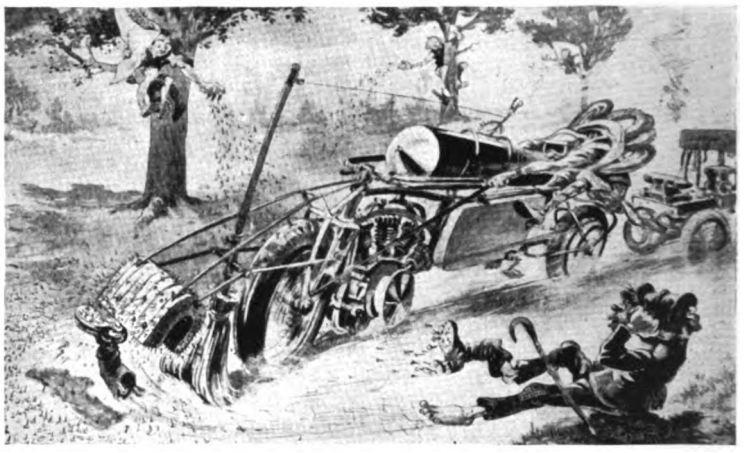
See our Exhibit at New York, Buffalo, and Boston Shows.

PRESCOTT AUTOMOBILE MFG. CO.
90 West Broadway, New York

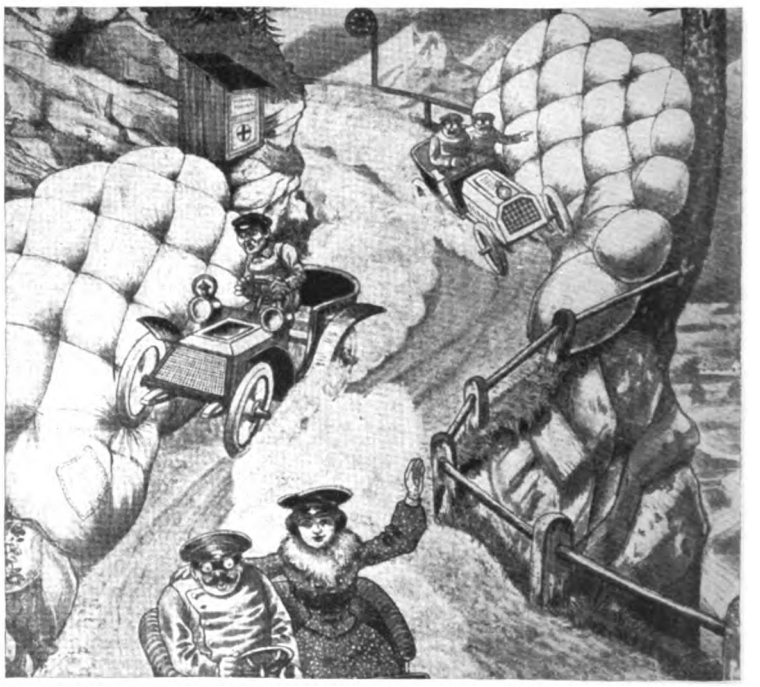
MOTORING HUMOR BY DAS SCHNAUFERL



THE TROUBLED DREAM OF THE SCORCHING MOTORIST WHOSE SLEEP IS DISTURBED BY VISIONS OF HIS KIND



AN IDEA FOR CIRCUMVENTING THE TACK FIENDS WHO MADE A FARCE OF THE FRENCH MOTOR CYCLE CHAMPIONSHIP



TOURING IN THE ALPS CAN BE MADE PERFECTLY SAFE BY AN ARRANGEMENT OF MATTRESSES

At the recently held second annual reliability and consumption trial in South Africa, twenty cars set off from Capetown to Houwhoek, the furthermost point of the run. Roughly surfaced passes were negotiated, the steepest gradient encountered being 1 in 5¾, in the Sir Lowry Pass (thirty-five miles out.) The length of the pass is 3⅝ miles, and the fastest cars covered it in twelve minutes; the slowest taking thirty-five minutes. The topmost point is 1,500 feet above sea level Only five cars made non-stop runs in both directions, the best performance being considered to be that of Mr. Herold's 9 h. p. Gladiator.—*Autocar.*

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HEADQUARTERS FOR EVERYTHING PERTAINING TO AUTOMOBILES

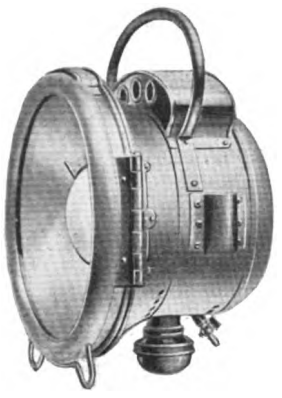
THE AUTO SUPPLY CO.

1662 BROADWAY, BET. 51st and 52d STREETS
NEW YORK CITY

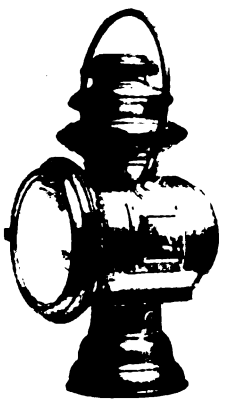
AUTOMOBILE ACCESSORIES OF EVERY DESCRIPTION

The following pages show in part our line of Automobile Supplies, Parts and Accessories. The goods here shown are from the advance sheets of our 1905 Catalog. Our line comprises the products of well-known and reputable manufacturers only. We do not offer experiments, as the best is none too good for our customers. We embarked in the automobile supply business in 1900, and have grown with the industry. Our efforts have been fully rewarded by thousands of well-satisfied customers and friends, whom we take this opportunity to thank for past favors.

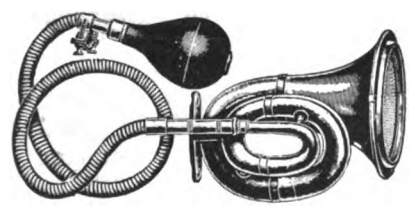
LAMPS



There are lots of good lamps, but the ALPHA LAMPS are in a class by themselves. Beware of imitations which our competitors call "just as good." Insist upon the genuine article with the "B. R. C." trade mark. The ALPHA is handsome in design and well made. There are two doors, one gives access to the magnifying lens, and one to the burner. The lamps are silver lined, and the reflector is specially shaped, so as to obtain the best results when focusing. There is a provision for straining the gas which prevents the stuffing of the gas tips. The pillar has a hexigon seat and is easily removed. There are many other novel and valuable features. Dimensions of No. 140 gas lamp: face, 11 3-8 inches; magnifying lens, 4 1-2 inches; height over all, 12 inches; depth, 9 inches; per pair, $100. Oil lamps, per pair, $50.



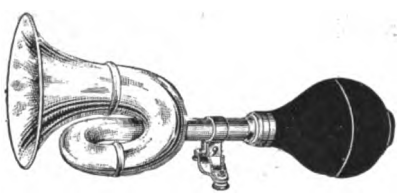
We carry SOLAR, RUSHMORE, and DIETZ LAMPS. These are the three leading domestic makes of lamps, and afford a large variety to select from. Special printed matter pertaining to LAMPS and GENERATORS sent on request. Ask for poster L.



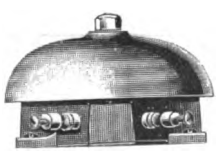
DOUBLE BUGLE HORNS
The latest imported novelty. When considering prices, please compare size, shape, sound, and quality of bulbs. No. 29—7 1-4 in. Bell, $12.50. No. 28—8 1-2 in. Bell, $18.00. With these horns we furnish any length tube desired.

HORNS

Our line of horns, bells, etc., is the most complete to be found.



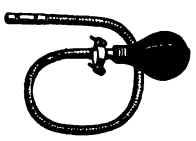
BUGLE HORNS
No. 1 Bell, 3 5-8 x 9 1-2 in., $2.50
No. 2 Bell, 4 1-4 x 12 in., $3.00
No. 3 Bell, 5 x 13 in., $3.50
No. 4 Bell, 6 x 14 1-2 in., $4.00
No. 5 Bell, 6 1-2 x 15 1-2 in., $5.00



Rousseau's Ideal Automobile Bell
5 in., $6.00; 6 in., $7.00; 7 in., $8.00.



HORN BULBS
Any size up to No. 4, $0.50; Nos. 6, 7, 8, $1.00; Nos. 9 and 10, $1.40 each.



HORN TUBES
40 in., $1.75; 50 in., $2.25; 60 in., $2.75; 72 in., $3.25.



REEDS
Ordinary Reeds, all sizes, 25c. each.
Adjustable Reeds, all sizes, 50c. each.



FOOT BELLOWS
$3.00.

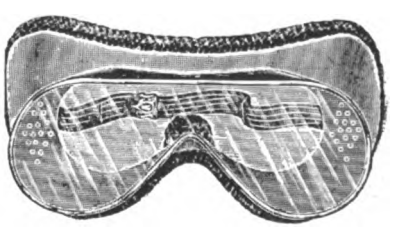
GOGGLES



THE LATEST NOVELTY IN GOGGLES
This Goggle is double hinged and has two side glasses which gives a perfect view, requires but little space when folded, and avoids the danger of breaking. It is made of the finest leather, kid lined, and chenille bound, $2.50.



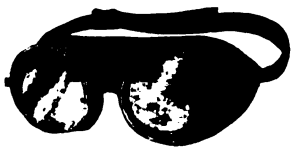
Made of soft doeskin, padded with white kid, $2.50.



THE GORDON BENNETT
Glass front, flexible aluminum sides, chenille bound, $3.00.

WRITE US FOR ANYTHING YOU DON'T SEE ON THESE PAGES

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COLLAPSIBLE GOGGLES
Same is shown open and closed. It is made of Silk Stockinette, allumino rims, set with flat polished lenses, $3.00.

GOGGLES
(Continued)



PARIS MADRID
Oval obique Eye Cups with flesh colored silk, and silk lined. The rims are bound with rubber tubing, giving the wearer the utmost comfort, $2.50.



Made of soft Mocha leather, $2.00.

IGNITION DEVICES



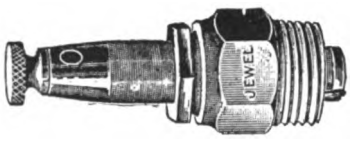
The latest 1905
MOSLER SPIT FIRE, $1.50



GENUINE DE DION, $1.70



AMERICAN INDESTRUCTIBLE
MICA CORE PLUG, $2.50.

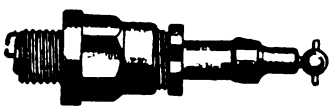


JEWELL, $1.50



DE DION PORCELAINS, 30c.

IMITATION DE DION, 50c.





SOOT PROOF, $2.00



Columbia Batteries
No. 6, 30c.
No. 7, 60c.
No. 8, 75c.



The Witherbee Storage Battery Igniter
Special printed matter giving sizes, weights, and prices on application.



MOSLER TIMERS
For 1 cylinder, $8.00
For 2 cylinder, $10.00
For 3 cylinder, $12.00
For 4 cylinder, $14.00



IMPORTED GUENET TIMERS
For 1 cylinder, $9.00
For 2 cylinder, $11.00
For 3 cylinder, $13.00
For 4 cylinder, $15.00



AMERICAN AMMETERS, $6.00



ATWATER KENT VOLT-AMMETERS
$6.00



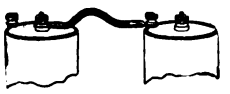
AMERICAN CUT OUT SWITCH, $1.00
The key is easily detached.



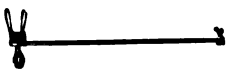
WIRE TERMINALS
Small sizes, per doz., 20c.
Medium, 30c.
Large, 40c.



COPPER PLUG GASKETS
Lined with asbestos, American or Metric sizes, per doz., 50c.



BATTERY CONNECTIONS
per doz., 36c.



SPARK AND CARBURETER LEVERS, $12.00



PLUG CASE
handsome and useful, $2.00.



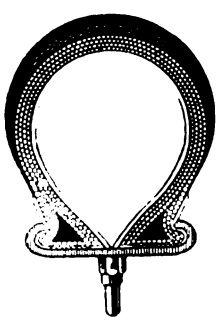
SECONDARY WIRE
The best that's made.
Diameter 9-16,
19 strands, per foot, 20c.

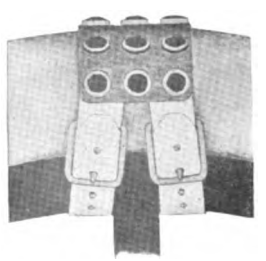


PRIMARY WIRE
Diameter 1-4,
12 strands, per foot, 7c.

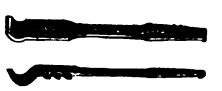
TIRES
AND TIRE ACCESSORIES

We have at all times a good stock of Tires on hand and can supply promptly the following makes: Goodrich, Hartford, Diamond, G. & J., Dunlap, Swinehart, Michelin, Continental and Samsons. Write for tire circular T.





THE POST NON-SKIDDING DEVICE
Made to fit any size tire, per set of 12 Grips, $10.00.

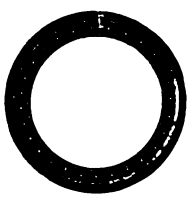


TIRE IRONS
14 in. long, each, 35c.

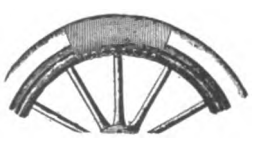




OUTER COVER BANDAGE
Made of friction rubber, it is the safest and quickest temporary cover repair on the market. No. 1, $3.80; No. 2, $4.40; No. 3, $6.00.



TIRE CASES
Neat and durable, made of heavy black enameled duck. Sizes up to 3 in., each, $3.50; to 4 1-2 in., $4.00; larger sizes, $5.00.



THE MICHELIN GAITER
Which is made of canvas and rubber and shaped to fit the tire, is far superior to the leather and raw hide gaiters. No. 1 for 2 1-2 in. and 3 in. tires, $2.25; No. 2 for 3 1-2 in. and 4 in., $2.75; No. 3 for 4 1-2 in. and 5 in., $2.95.



INNER TUBE BAGS
No. 1, size 10 x 14 in., 50c.; No. 2, 11 x 15, 60c.; No. 3, 14 x 19, 75c.

WRITE US FOR ANYTHING YOU DON'T SEE ON THESE PAGES

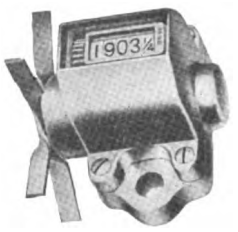
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SUNDRIES

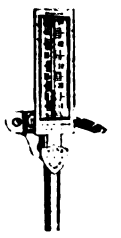
Herein is shown but a few of the many articles which fall under the heading of Sundries. If there is anything in this classification not here listed write us, stating your needs.



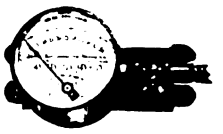
Veeder Dash Board Odometers, complete with fixtures to suit car, $25.00.



Veeder Form A and B Instruments, each, $7.00.
At an additional charge fixtures are supplied to fit all standard makes of cars. Special printed matter giving particulars and prices on application.



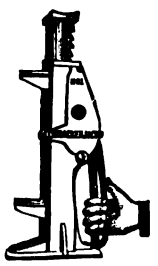
WEBB SPEED INDICATOR
40 mile instrument, $40.00; 60 mile, $50.00; 100 mile, $60.00.



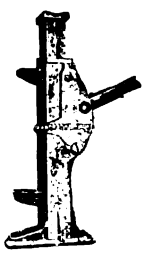
JONES COMBINATION SPEEDODOMETER
4 in. dial, 60 to 100 miles, $90.00; 3 in., 50 miles, $75.00. Speedometer only, 60 to 100 miles, $60.00, 50 miles, $45.00.



SEARLES' No. 9 JACK
Guaranteed for two ton cars, the Jack only weighs 4 1-2 lbs., and on account of its lightness and strength we recommend same for both touring and garage, $3.00. The lifting range is from a 28 in. to a 38 in. wheel.



KRACKER JACK
No. 2, height 14 in., lift 8 in., capacity 1 ton, $3.50.



KRACKER JACK
No. 1, height 12 in., lift 6 in., capacity 1500 lbs., $3.00.



This Jack is recommended for very heavy stable or garage work, lifting range from 12 in. to 18 in., $5.00.



PEERLESS
No. 15, for vehicles weighing 1 1-2 tons, height 10 in., rise 7 in., weight 4 1-2 lbs., $2.50.



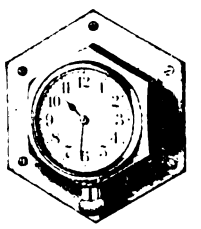
OFFSET DASHBOARD CLOCK STYLE A
This Clock is a genuine imported article and fully guaranteed. The Watch is securely locked in a handsome case and cannot be removed without key, it is dust proof and rain proof. Diameter of dial 3 1-4 in., 1 day Clock, $15.00; 8 day Clock, $21.00.



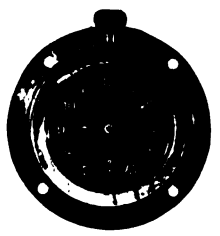
STYLE B
Is the same quality and dimensions as Style A. 1 day Clock, $14.00; 8 day Clock, $20.00.



STYLE C
1 day, $7.50; 8 day, $11.00. The diameter of dial 2 1-2 in.



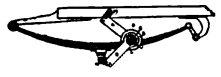
HEXIGON DASH CLOCK
1 5-8 in. dial, $3.00.



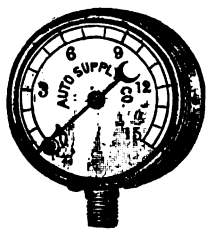
We are supplying dashboard cases fitted with Ingersoll watch, stem winder and setter, at $2.00, complete. The case only, 60c. Will fit any ordinary watch.



SKAT
Guaranteed to be the best hand cleaner on the market, per can, 10c.



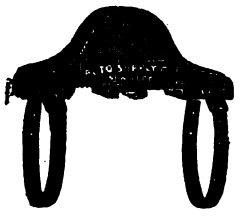
TRUFFAULT-HARTFORD SUSPENSION
Absorbs all shocks on bad roads. With this device there is no jarring of the car and breaking of springs. It is reliable, durable and saves tires; price per set, $60.00. For full information write for special printed matter.



This Gauge is principally used to show the circulation of water, $4.00.



MAGNETIC INDICATOR
Shows exact quantity of gasoline in tank, supplied in different lengths to suit, $5.00.



RUBBER BUMPERS
As shown, are made in three different sizes, smallest size, $1.00 per pair; medium size, $1.50 per pair; largest size, $2.00 per pair. We also supply round Bumpers, made in three different sizes of best quality rubber, per lb., $1.25.



NON-FLUID OIL
For automobile lubrication, supplied regularly in 3 lb. cans, 75c.



COPPER SPUN GASOLINE FUNNEL
This Funnel will separate the water from the gasoline. Size 7 1-4 in. Price, $2.00.



MONOGRAM OIL
Highly recommended for cylinder lubrication, single gal. cans, $1.00.



A handy tool for repairing chains, each, 50c.



This Auto Car Soap will get the scum, grease and dirt off without injuring the highly polished surface, 5 lb. cans, $1.00.



Our number pads are of good enough quality to suit the most expensive car. Pads with 4 numbers, with either N. Y. or N. J., $2.00. For additional number, 25c.

CHAINS

Our line of Chains consists of the Whitney, Diamond, and Baldwin; our stock is complete and we fill orders promptly. Ask for Circular C.

INDUCTION COILS

We have exclusive representation of the American Coil Co.'s line in New York. They are manufacturers of the highest grade of Ignition Devices. Special printed matter on request. Write for Poster No. 2.

We carry a complete line of the Poughkeepsie Art Pulp Co.'s Automobile Hampers, Carrying Cases, and Tool Cases. Their goods are water proof, dust proof and grease proof, and is positively the finest line on the market. Write for special printed matter.

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SUNDRIES
(Continued)



DUPLEX AUTOMOBILE FOLDING PAILS

Rigid, simple and strong, capacity 12 quarts; No. 5, with funnel, splash guard, strainer and wire handle, price $2.00. No. 6, same as No. 5, without funnel and strainer, $1.50



BRAKE STEP

Cadillac, Winton, Ford and other large types, each, $5.00. For Oldsmobile and other small cars, each, $3.50



BEST QUALITY OIL GUN

Made of heavy guage seamless brass tubing, $1.25.



OIL GUN

No. 1, $1.00; No. 2, 70c.



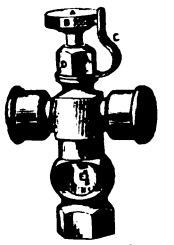
CANNON OILERS

The No. 0 is the best suitable size for automobile use, price $1.00.



EMPRESS RATCHET GREASE CUP

The cap cannot jar off, it being held on by a spring ratchet which locks at every half turn. No. 1, inside diameter 1 in., 40c.; No. 2, 1 1-4 in., 50c.; No. 3, 1 1-2 in., 60c.



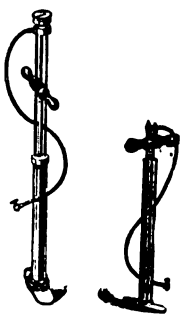
SIDE FEED OILERS

By using a close 1-8 in. nipple as many feeds as desired can be coupled together, price, each, $1.25.



STYLE A SPRING OILERS

No. 1, 10c.; No. 2, 15c.; No. 3, 20c.



With this Pump a pressure of 200 lbs. can easily be obtained. Pump with gauge attached, $7.50; Pump only, $5.00.



LEVER PUMP

Cylinder 3 x 6 in., $5.00.



No. 0, Cylinder 1 1-2x22 in., $2.00; No. 1, Cylinder 1 1-4x12 in., 75c.

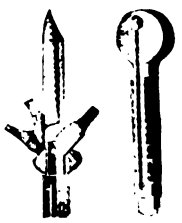


Cylinder 1 1-4x7 1-2 in., $1.50.



COMBINATION PUMP NIPPLE

This Nipple fits Continental, Michelin, and Schrader valves, 30c.



COMBINATION MAGAZINE KNIFE AND SCREW DRIVER

$1.50



IMPROVED COMBINATION PLYERS

Black, 6 in., 75c. Nickel, $1.00.

Perfect Handle Screw Driver

Drop forge, solid, one piece with hammer head, 4 in., over all 8 in., 40c.; 6 in., over all 12 1-2 in., 60c.; 8 in., over all 14 3-4 in., 75c.



EMERGENCY DROP BRAKE

Made in two sizes; for 28, 30 and 32 in. wheels, each, $2.00; for 34 and 36 in. wheels, each, $2.50.



LIGHTNING PLYERS

Finished in nickel. 7 in., the best suitable size for general automobile work, each, $1.00.



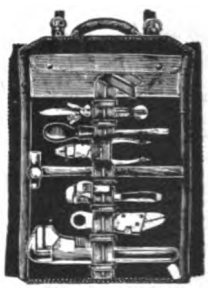
TOOL ROLL

Made of heavy brown canvas, has 17 pockets of different sizes for holding tools, $1.50.

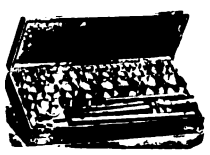


ADJUSTABLE S WRENCHES

6 in., 75c.; 8 in., $1.00; 10 in., $1.25; 12 in., $1.50.



Collection of 7 high-grade tools assembled in a leather roll, price, complete, $12.00.



THE ONLY AUTOMOBILE COMBINATION WRENCH

Light, strong and indispensable, contains right and left lock ratchet, universal joint and screw driver attachment, also stock, universal and extension stubs, two screw drivers and 31 socket wrenches, complete in wooden box 12 1-2 by 6 1-2 by 2 1-4 in., price per set complete, $18.00.



ASSORTED CHISELS AND PUNCHES

6 1-2 in. long, made of best steel, carefully hardened and tempered, supplied regularly in a handsome leather roll, complete per set, $4.00.



We have a complete assortment of LEATHER COATS AND PANTS which we are offering at lower prices than this line of goods is generally sold for. Prices on application.



Over 20 different styles of CAPS carried in stock, prices ranging from 75c. to $5.00.



LEATHER GAUNTLET GLOVES

Style A, made from select stock, lined or unlined, $2.00 per pair.
Style B, $3.00.
Style C, $4.00.
Our style B and C Gauntlet Gloves are intended for gentlemen's driving. The quality cannot be surpassed at any price.

We have in stock a large assortment of Drop Forgings, and also carry the following: Wheels, Axles, Springs, Steering Devices, Motors, Speed Changing Gears, Carbureters, Dynamos, Circulating Pumps, Radiators, Fenders, Oilers, Mufflers, Sprocket Wheels, etc., Mail orders receive at all times our best efforts. Please remember that we do not find it trouble to answer questions. If there is anything pertaining to automobiles which you want we can supply the desired article as promptly as any one and, in most cases, sooner. We are making an honest effort to sell goods as reasonably as possible, and guarantee every article as represented. A trial will convince you.

THE AUTO SUPPLY CO.

1662 BROADWAY, Between 51st and 52d Streets NEW YORK CITY

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1904
St. Louis
Exposition
—
Grand Prix

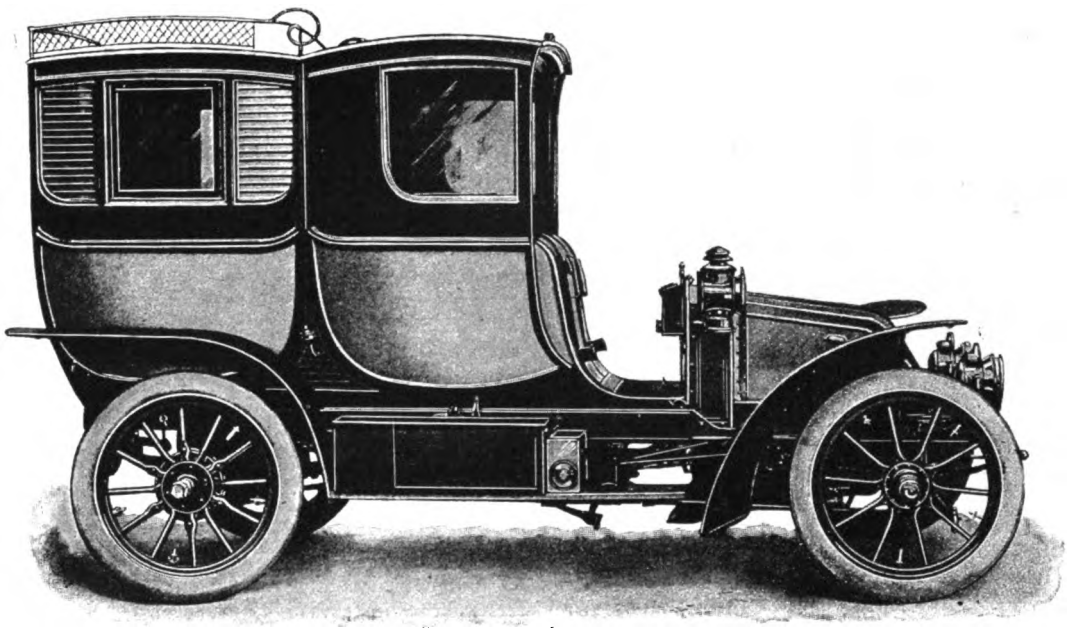
Automobiles

RENAULT FRÈRES

Brillancourt (Seine), France

1904
Vienna
Exposition
—
Grand Prix

800
workmen



Factory
with
25,000
sq. yds.
of floor
space

PARIS-BERLIN: 1st Prize

All the light Autos beaten by the Renault Voiturette

PARIS-VIENNA: 1st Prize

First in the General Classification

PARIS-MADRID: 1st Prize

First among the light Autos

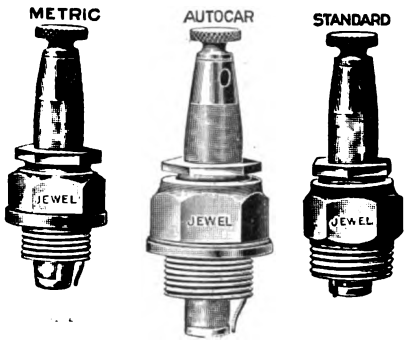
1904
Nantes
Grand Prix
—
1904

Automobiles for city use
Automobiles for extensive touring
Automobile delivery wagons
Automobiles for the race

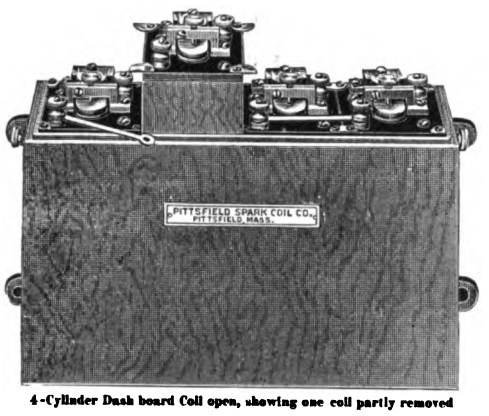
Motors for boats, or for industrial purposes
from 7 to 60 horse power

1904
Lyons
Exposition
—
Grand Prix

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Jewel Mica Spark Plug



4-Cylinder Dash board Coil open, showing one coil partly removed

MERIT ALONE

has made our

COILS

popular

No lucky chance; no trading on an old name; no cut price methods; nor any unimportant cause has made our Coils the favorites with experienced buyers. *Merit* and *Merit* alone is the only reason, and it's about as safe a guarantee of satisfaction a manufacturer can give the trade and public.

Many of the best manufacturers in America are using our goods exclusively and our customers of last year are the first to buy our 1905 Coils, showing that the test of time has proven the advantages of our product.

What we have said about our Coils also applies to our Plugs. If you want a really meritorious article you can secure it in the 1905

JEWEL MICA SPARK PLUG

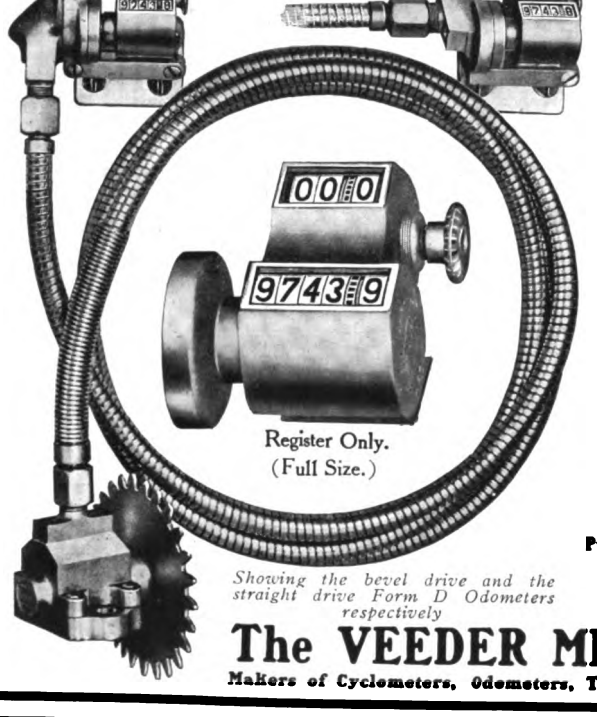
We have one of the largest and finest equipped factories in this country for the manufacture of ignition specialties.

Write for Booklet

Pittsfield Spark Coil Co.
Pittsfield, Mass.

THE VEEDER Form "D" Odometer

For the Dashboard



Showing the bevel drive and the straight drive Form D Odometers respectively

"It's Nice to Know How Far You Go."

Both registers indicate in tenths of miles. The upper one may be set back to zero at will.

The figures are good and plain, and are so compactly arranged that the instrument occupies a minimum of space on the dash.

The flexible driving shaft turns comparatively slowly in the Veeder Form "D" Odometer, avoiding rapid wear.

Price, Complete with Attaching Fixtures for any of the Standard Cars, $25.00

The VEEDER MFG. CO., 24 Sargeant Street Hartford, Conn.

Makers of Cyclometers, Odometers, Tachometers, Counters and Fine Castings

MOTOR For the Reader—Interesting For the Advertiser—Profitable

ARC



Electric dash clock, two candle power lamp, battery in case, flexible cord and push button. A beautiful accessory for day and a necessity for night riding, just the thing for physicians.

PRICE, $8.00 PREPAID

AUTO REBUILDING CO.

INDIANAPOLIS, IND.

THE TRICAR'S POPULARITY

A surprising interest seems recently to have been awakened abroad—in England especially—in the "tricar." Briefly, a tricar is a three-wheeled affair, between a motorcycle and a full-fledged four-wheeler in its structural features and, particularly, in price. The tricar is an evolution of the motorcycle with forecarriage attached, and averages in cost about $300. The real secret of its popularity doubtless lies in the fact that it is a sort of a motorcycle built for two. It is a motor vehicle in which the low first cost and operating expenses of the motorcycle are separated from the unsociableness that is one of the chief objections to the two wheeler. Though a vast amount of criticism—technical, commercial, practical, etc.—has been leveled against the tricar, it possesses certain indisputable advantages that are exclusively its own, and that are fortifying it more and more strongly in popular favor.

At the recent Stanley Show, in the Agricultural Hall, London, practically every exhibitor of motorcycles also showed at least one tricar at his stand. Compared with the tricars of a few years ago, the new vehicles show most commendable and remarkable improvement. Instead of the cruder bicycle constructions—bicycle saddles, bicycle frames, bicycle springlessness, etc., there now is a tendency towards the use of more efficient and reliable, elaborate and comfortable constructions. Bucket seats, both for driver and passenger, are one noticeable evidence of progress. Ample running boards, for the feet of the operator and to carry parcels, are another improvement; while at least one tricar on the market has an excellent canopy top.

The advantages of the tricar are numerous, though most of them relate in one way or another to the question of expense. Only one wheel being used as a driver, the necessity for a differential mechanism is eliminated. For the same reason, the transmission system is considerably simpler than is required for a car, being, in fact, the same as is necessary for a bicycle. The light weight of the tricar insures tire expenses being kept at a minimum, and fuel and lubricant demands are reduced correspondingly.

The tricar scores in many ways over other motor vehicles. While the running expenses in connection with it differ in only a slight degree from the cost of running a motor cycle, it has the inestimable advantage of carrying two people and of thus giving just twice as much pleasure as the single-seater. It occupies but a little more stable room than the cycle and is not regarded by the hotel proprietor as a luxurious vehicle, the occupants of which (in his estimation) are fair game to be fleeced. So garage charges and hotel accommodation are generally more moderate. In the case of a mishap, the mechanism is so much simpler that the fault is very readily located, and the absence of certain complicated parts in the transmission system materially reduces the risk of such mishaps. Should the mishap be serious, the chain or belt can be removed and, provided pedaling gear has not been dispensed with, the machine can be pedaled to a convenient stopping or repair place. A car does not permit of this.

Improvements in tricars seem to trend towards a more general faith in water cooling, the adoption of change-speed and free-wheel devices, the use of spray in place of surface carbureters; the provision of shields to protect the mechanism, and the application of irreversible wheel steering.

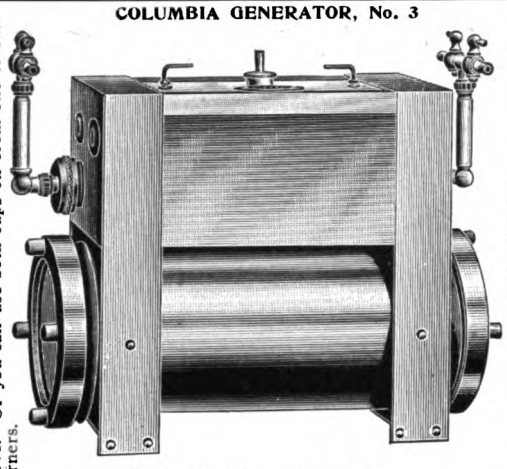
The future of the tricar is certain to be determined largely by the persistence of a demand for low-priced cars.

A prime requisite to the successful use of tricars is good roads, since otherwise the third wheel of the vehicle must jolt annoyingly along the center, and commonly poorer portion of the road surface. This doubtless is the reason that the tricar so far is unpopular in the United States.

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COLUMBIA GENERATOR, No. 3

GENERATOR NO. 3.—Capacity 54 ounces of Carbide—intended to supply from one to six burners—equipped with two Carbide cups—can use one cup on from one to six burners and keep the other cup in reserve. Or you can use both cups on from one to six burners.



Write for catalog and prices.

COLUMBIA SEARCH LIGHTS, A B and C

SEARCH LIGHTS.

A. equipped with adjustable burner and 5 in. mirror lense.
B. " " " " " 6 in. " "
C. " " " " " 7 in. " "
D. " " " " " 8 in. " "



COLUMBIA GENERATOR, No. 2

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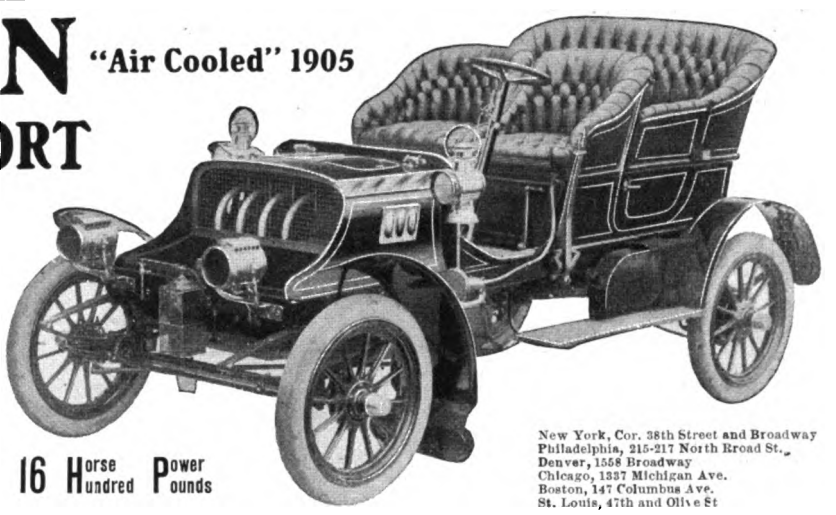
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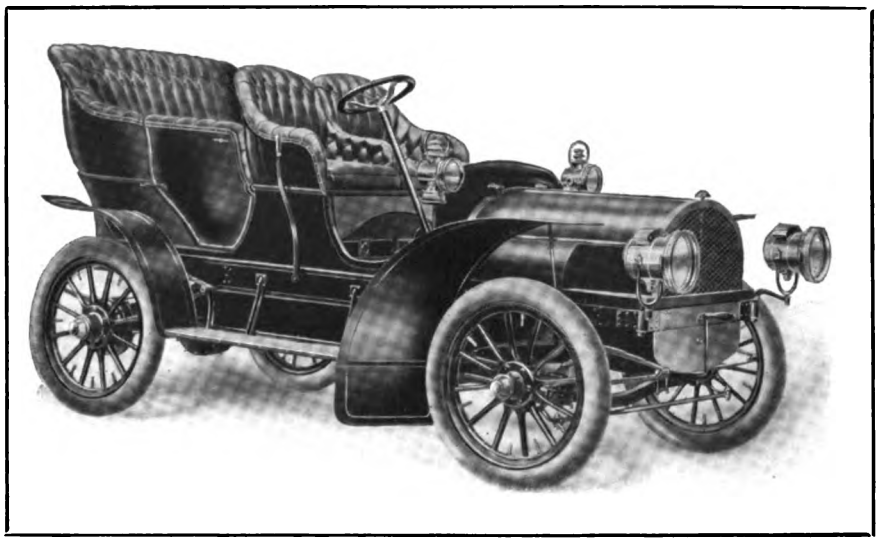
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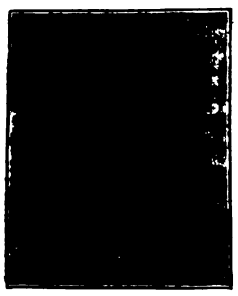
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WATCH HILL, R. I.—New Plimpton.
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IF you have an AUTOMOBILE for sale and want to sell cheap we will buy.

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If any of the following machines interest you wire us to hold by using the number. We will wire back if we still have it on hand, and hold till we receive your letter with deposit or full amount.

We guarantee every Automobile as represented or money back. Quick sales, small profit.

No. 30. LOCOMOBILE, 4 cylinder, 1904 Model, like new; big sacrifice; 22 horse-power, $2,700.

1. LOCOMOBILE touring car, Model C, 1904. 2 cylinders, cost $2,100. Cannot tell from new, $1,250.

2. LOCOMOBILE touring car, 1903, 2 cylinders, newly painted, good as new, $1,000.

3. 1903 WINTON, in perfect condition; like new, $900.

4. 1903 WINTON, in perfect condition, $750.

5. 1903 WINTON, in perfect condition, $600.

6. 1902 WINTON tonneau, in perfect condition, $400.

7. 1902 WINTON tonneau, in perfect condition, $375.

8. 1904 RAMBLER tonneau, like new, $450.

9. 1904 RAMBLER runabout, like new, $300.

10. 1903 FORD tonneau, fine condition, $550.

11. 1904 FRANKLIN runabout, like new, $900.

12. HAYNES-APPERSON runabout, in best of condition; big snap, $450; cost $1,450.

14. CADILLAC, A, in finest running order, $400.

15. 1904 STUDEBAKER electric, batteries in perfect order; cost $1,175. We sold man larger car; will sacrifice for $450.

16. Latest electric WAVERLEY runabout; big snap, $300. Party leaving town.

17. OLDSMOBILE delivery wagon, like new, $550; for quick buyer, in perfect order.

18. WOODS electric brougham, just had new batteries put in and newly painted; belonging to an estate that must be settled; $1,500 will take it, less than half price.

19. OLDSMOBILE, latest type, with dos a dos seat, in finest condition, $300.

20. OLDSMOBILE runabout, fine condition, $225.

21. OLDSMOBILE runabout, fine condition, $200.

22. OLDSMOBILES, three in good condition, 1902, at $175 each.

23. LOCOMOBILE, steam surrey, with top; guaranteed in perfect order; big snap, $300.

24. LOCOMOBILE, steam runabout, like new, $150.

25. MOBILE steam runabout, good condition, $100.

26. UNITED STATES LONG-DISTANCE RUNABOUT, $200; big snap.

27. CADILLAC, Model B, fine condition, $600.

The above are our special bargains; complete list sent on request.

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1904 KNOX WATERLESS Touring Car; best condition; completely equipped; used five months; belongs to Dr. J. T. Sprague. Can be seen at 17 Vanderbilt Avenue, Clifton, Staten Island.

WANTED.—An expert Draftsman, thoroughly experienced in Automobile work. Must have best of references. Address J., care MOTOR, 1789 Broadway, N. Y. City.

FOR EXCHANGE.—A fine collection of ancient stone Indian relics, valued at $700, for Standard Gasoline Automobile. Hamlin Barnes, Wellsville, Ohio.

INDIAN—For sale, winner of 5-mile race, Oct. 1st, Chicago, Ill.; 1904 model, and speedy machine; in excellent condition, $150 takes it. W. P. Cook, 421 So. Scoville Av., Oak Park, Ill.

TO AUTOMOBILE BUYERS.—If you are interested in getting first-class cars at exceptionally fair prices, write us, stating your wants. Among others we have an Olds Touring Car run only four weeks; not a scratch on it; $600. Similar bargains in other makes, Kirk-Hall Co., Toledo, O. A-24

CHEFFEUR AND GUIDE.—Man of education and refinement, an expert automobile mechanic and driver, experienced at touring in large cars. Is open for engagement as driver, guide, and mechanic for suitable party wishing to tour through the South during January and February. Finest references. Address Satisfaction, care MOTOR, New York.

LAUNCH RELIANCE.—37 ft. x 6 ft. x 2 ft. tender to Cup defender "Reliance," designed by Herrshoff, built by Electric Launch Co.; 16 horse-power Hasbrouck, four cycle, four cylinder engine, 60 gallon tank capacity, consumes less than 1½ gallons per hour, speed 13 miles. Half-inch cedar planking, oak frames and keel, fastened with copper rivets; finish in teak and mahogany; full inventory complete in every detail. For sale, or will exchange for touring car. A. G. Stratford, Jersey City, N. J. 3-16

WANTED.—Automobile—Oct., 1900—Back numbers Motor Vehicle Review, 1902—Motor Age, 1900-01. Write to Mrs. C. F. MacDermot, Hotel Touraine, Boston, Mass.

$300 for 1904 model Orient Buckboard in fine condition; lamps, horn and lot of extras, including new rear wheel; tires never punctured; want larger machine. Address Lock Box 5, Allamuchy, New Jersey.

WANTED.—Automobile in exchange for good improved Iowa or Illinois farm. Address Box 81, Independence, Iowa.

WILL exchange 1904 Model "H" Rambler; extra tire, 4 camps, A1 condition, just overhauled, for Orient Buckboard, but must be 1904 and A1 condition. Address "Doctor," 737 Sneca St., Buffalo, N. Y.

THOMAS, Model 18, Touring car; carries five; 10- H.P. Cost, $1,400; fine condition; price, $600. G. H. Leonard, 1 Temple Court, Auburn, N. Y.

FOR SALE.—One Orient Motorcycle, in good condition. Very speedy, and always ready to go; cheap for cash. A. A. Knights, 5 Staples St., Melrose, Mass.

SITUATION WANTED.—In Automobile factory, by first-class practical and experienced carriage draftsman of great originality. Address Draftsman, care MOTOR, New Publication Co., 1789 Broadway, N. Y. City.

OLDSMOBILE, late 1903 model; used less than a year; artillery wheels; detachable diamond tires; first-class condition; specially made; great hill climber. A. Bowe & Son, Meriden, Conn.

WANTED.—Light runabout from 5 to 10 H. P., in first-class shape. Gasoline power, good tires, and medium speed. Must be good and cheap. State kind of car, power, make, etc., and quote prices. U. D. Fortier, Grant Park, Ill.

ONE STEAM RUNABOUT; flash generator; very fast; A1 shape. One locomobile; steam air and water pumps; leather top; kerosene burner; fine condition. One Kelly burner. One pilot light. One fuel regulator. One low water alarm. One 14-in. tubular boiler. One Victor steam pump. One water (Marsh) pump; lot gauges, fittings; 300 air tank valves; 1,200 wire spokes; 4 second-hand 28 x 3-in. casings; 2-34 x 4 inner tubes. One gasoline tank. One charging panel and rheostadt. One circulating pump; lot of French horns; a few spark coils and carburettors, very cheap. One cement motor cycle outfit. One Orient buckboard, fine shape. Geo. B. Kinkaid, Mgr., 1014 Willson Ave., opp. Prospect St., Cleveland, Ohio.

THOMAS FLYER; run about 100 miles; practically new; an elegant proposition; cheap. Thomas model 18, touring car; a handsome and stylish car at an exceptionally low price. One Pope-Tribune bran new from factory; also one run not to exceed 50 miles; no better runabout made and our price is the most interesting part. Cameron car, air cooled; a perfect vehicle for a physician or anyone requiring a good runabout for winter as well as summer use; our price about half. Orient buckboard; latest 1904 model; we call it new; been run merely to test out. Condition of machine and our price make it the best proposition ever offered in a board. The Starin Co., North Tonawanda, N. Y.

FOR SALE.—A 1904 Elmore Tonneau, only slightly used, $650. A 1904 Oldsmobile with Dos-a-dos seat, new for $475. These are genuine bargains. Address Frank Floding, Lorain, Ohio.

FOR SALE.—Foster steam touring car, with condenser, in fine condition; seats four, and will be sold at a bargain to make room for larger car. Description and photo furnished parties interested. Chas. H. Wise, Lohrville, Iowa.

WHITE 1904 touring car for sale. GUARANTEED in PERFECT mechanical condition and newly painted; $350 worth of extra equipments. Price, $1,400; with top and glass front, $1,500. Reason for selling, have bought 1905 White. H. B. Mallory, Danbury, Conn.

FOR SALE.—One Marsh air pump; A1 condition, $1,500. One Locomobile Beval Deferential gear, $500. One Locomobile Side Steering Level, $500. One 18-in and one 14-in. gasoline burner, $5.00 each. One 14-in. blue-flame kerosene burner, $5.00. One Veeder meter, $1.50. One pair axels, $3.00. One pair steering knuckles, $2.00. One Victor water pump, A1 condition, $13.00. One pair solar lamps, $6.00; regular, $15.00 lamp. Address Robert Roth, 1423 North Ave., Bridgeport, Conn.

FOR SALE.—90 H. P. De Dietrich Touring and Racing Car. The best touring car in the United States to-day. Of same pattern and having similar engine and motor as the de Dietrich driven by M. Gabriel, which competed in the W. K. Vanderbilt cup race this fall. Fitted with the very latest improvements; side entrance body; in perfect repair; renovated less than 30 days ago; without a scratch on the paint or a defect in its machinery. Will be sold for half its cost. Apply Room 4, Harvard Bldg., 102 West 42nd St., New York.

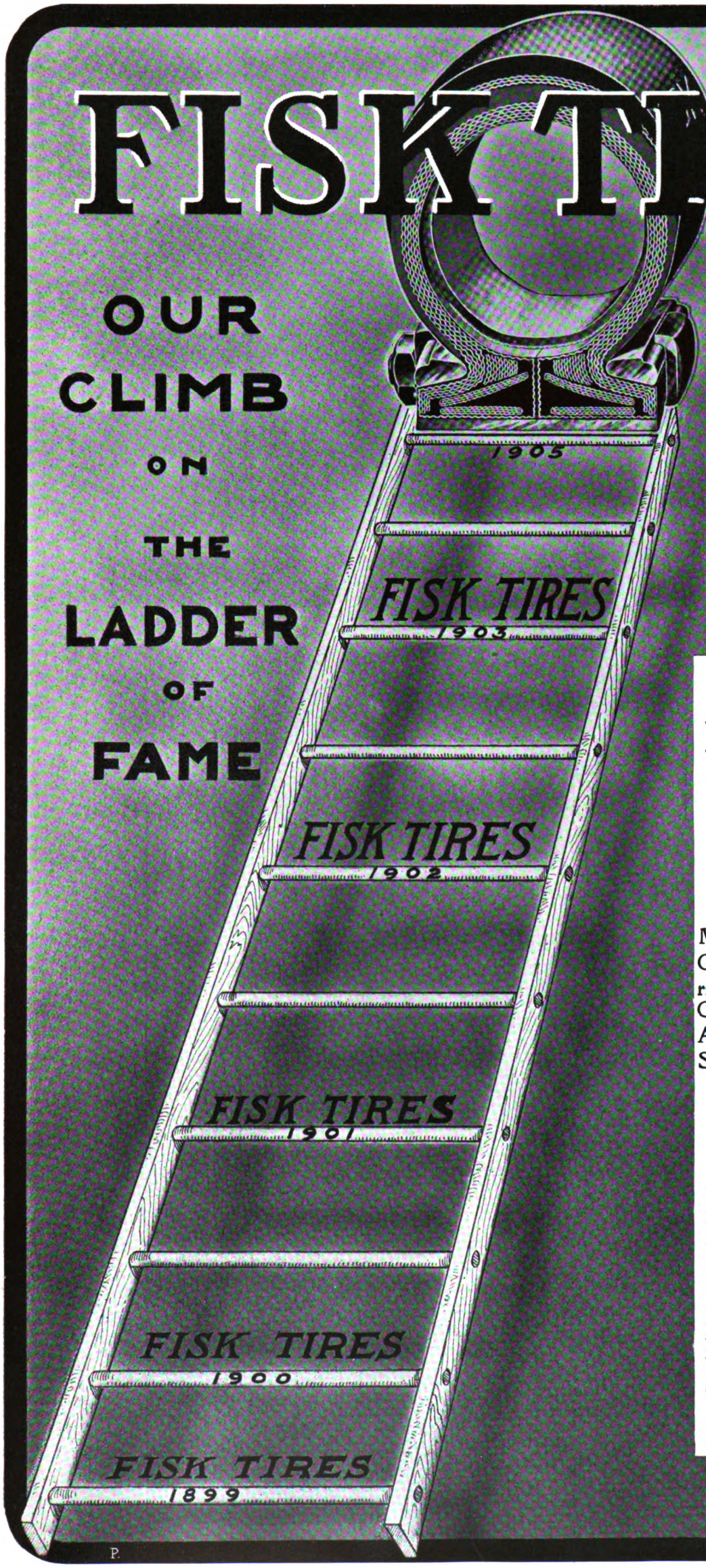
MECHANICAL ENGINEER.—Automobile expert, John C. Higdon, Asso. Am. Soc. M. E., 25 years' experience, 8 in auto building. Am the designer of some of the most successful engines and complete autos now in use. I refer to owners. Write me for advice on your knotty problems. To buyers: Ask me to name best car for a given price. I do not favor St. Louis cars. Office, 605 Missouri Trust Bldg., St. Louis, Mo.

FOR SALE.—Picturesque ranch of 160 acres at Los Gatos, California, 54 miles from San Francisco. Twenty-five acres in fruit, vines, etc. Portion of land well forested. Ample supply of pure water for domestic and irrigation purposes. Altitude, 1,000 feet. Superb view of San Francisco, Oakland, San José, the Lick Observatory, and the Santa Clara Valley. Frost unknown. Excellent train service to San Francisco. The best roads for automobiles in the State extend 100 miles in almost every direction. Buildings include five-room cottage, barn and outhouses. Ocean 15 miles away. Would take part cash, the rest on mortgage, if desired. Address X Y Z, Motor, 1789 Broadway, New York City.

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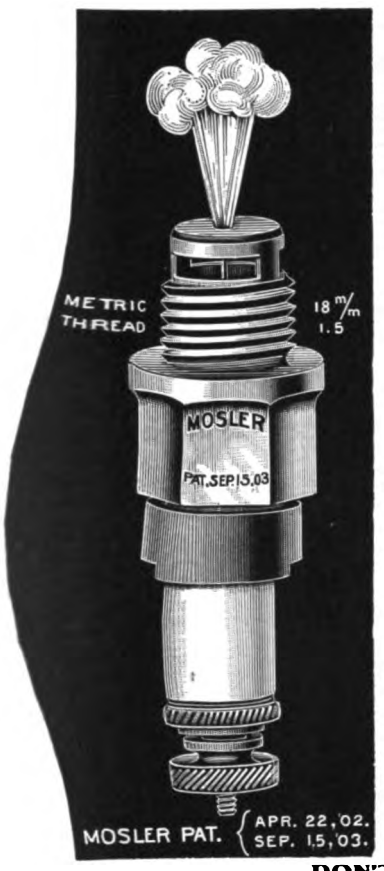
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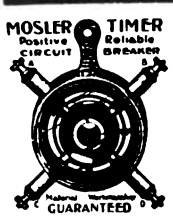
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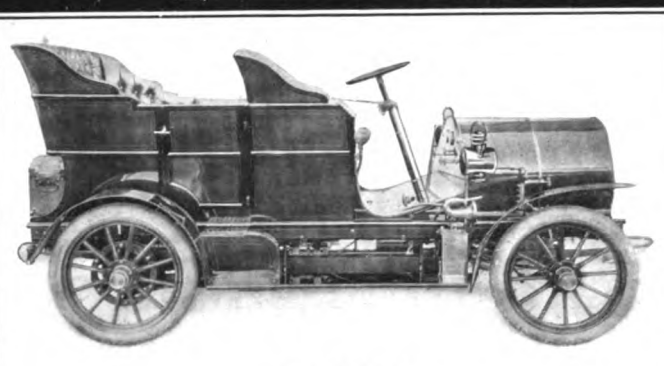
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12 H. P. Horizontal engine, running in an aluminum case with new continuous oiling device, lubricating every moving part positively. 18" Copper, wire wound, boiler of our own make. THOROUGHLY GUARANTEED. New one piece cast iron burner with noiseless pilot that cannot be extinguished by any wind. New throttling device in connection with perfected superheater. New fuel system that eliminates complication. Power air and water pumps that run off countershaft and remove all illegitimate strain from the engine. Side Chain Drive. Internal expanding brakes of new construction. Automatic draught arrangement. Very long springs and most modern body hung up.

The equipment includes full set of tools and parts in special tool case on running board. Large Acetyline Head-Light and Acetyline water glass lamp from one generator. Two side oil lamps all of brass. Large horn and tube. This car will seat five people comfortably.

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1905 CATALOGUE WILL BE SENT UPON REQUEST GIVING FULL DETAILS

MOGUL NO. 9.

By Fred E. Dayten

"Skinny" Flynn had leaned out of the window of Mogul No. 9 for three years. Before that he had run "214", and tradition said that he began railroading firing Jupiter, a wheezing old go-cart that passed for a monster locomotive in the days of single tracks, weak bridges, sharp curves, and steep grades. Flynn had got to the point where he saw things at night; when he slowed down to escape imaginary persons walking the track directly in his path, and when a new crowd of officials came, Flynn took the pension that was coming to him for long years of faithful service and quit. But he was lost without the excitement of sanding the track, disputing the orders of the dispatcher,

So "Skinny" Flynn bought a motor car. "I'm perfectly familiar with steam," he argued, "and that's the good old reliable. It's good enough for me," he added, as he displayed a gay painted runabout. At first he couldn't get used to doing his own wiping and brass polishing, and it seemed peculiar that he should need to watch the steam gauge constantly. It was peculiar to him, too, having to employ his feet for any other purpose than as a cushion on which to repose the rest of his anatomy. The steam lever was more like a toothpick than the great arm of steel, and it took him some days to get used to globe valves where lever ones were more familiar.

But it was when "Skinny" Flynn went out on the road that the change was most apparent to him. It bothered him that a dispatcher had not been notified of his run and had not cleared the tracks for his approach. It always seemed to him that the frost had got under the ties—the roadbed was so uneven. Every farmhouse lamp meant more to him than it did to any other user of the highway, and the sight of a red light always sent him reaching for the sand box rod and the air at the same time.

It was a very dark night, cold, raw, and piercing, but Flynn, in his rugged health, ran with his black shirt open at the neck and hatless. He had followed the tracks for miles at a stretch, and had raced overladen No. 9, snorting up the Willhassett grade. The contest lost its enthusiasm when Haggerty's Siding was reached, because the train crew had to snake a couple of flat cars out of the middle of the train. Flynn crowded all steam and rushed ahead, his little runabout rocking from side to side as if a washout had undermined the rotten ties on the short line. Still Flynn kept up his pace, and soon he was out of hearing of the old bullgine that had been his so long and that "Smutt" Zimmermann, his old Dutch fireman, now had for a steady run.

From out of the darkness someone cried out to stop, but Flynn only laughed. "Clear track—ten minutes late—pass the up Owl at Thomaston water plug—ain't visitin' to-night," said Flynn to himself; and on he sped. Once he got an awful scare—there was no water in the boiler! But it was only when he was running on a side hill. It was a new experience for him. There was a nice stretch of clear road ahead, and Flynn gave the steamer a little more throttle. She answered with a bound, and sprang from under like a new double-cylinder compound hitched to a caboose.

The road paralleled the track at this point, and Flynn was on familiar ground with the little car turning up as many revolutions as it was capable, when suddenly a red light shown in view. Directly the old railroader brought his charge to a stop. The red light was several hundred yards away, and No. 9, his favorite old girl, coming down the track—it was down grade now. The red light meant "danger"—not to him, but to "Smutt" Zimmermann and "Paddy" Fenton, smoking his pipe in the caboose, and to Will Riley, dancing a jig atop a cattle car, and to "Pan Handling" Flanigan heaving a coupling pin at a couple of hoboes crouched on bumpers.

Flynn acted quick. To remove an oil lamp was but the matter of seconds. To jump the ditch and plant himself in the track of No. 9 took less than a minute, and Flynn was wildly swinging his lamp, when "Smutt" took a second look to make sure, and stopped.

"Well, so dis iss the old boss! What's the trouble?" said the recently promoted fireman-engineer. "Danger ahead—see the red light?" interrogated Flynn, making himself a hero. At that moment a track walker hove in view, and, between gasps for breath, told of a quicksand washout. The freight had been saved, and No. 9 made her trips without incident until next general repairs. On the Air Line division they'll tell you that old man Flynn—"Skinny" Flynn at that—and his motor car saved the down "Owl" freight.

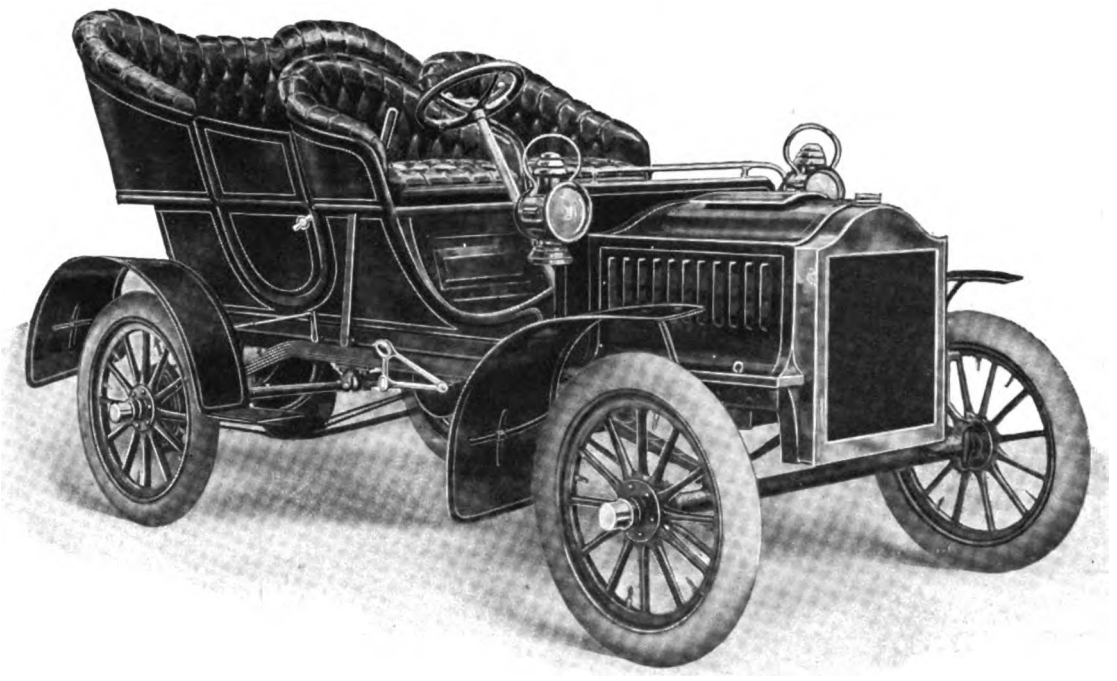


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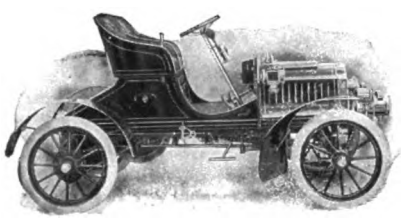
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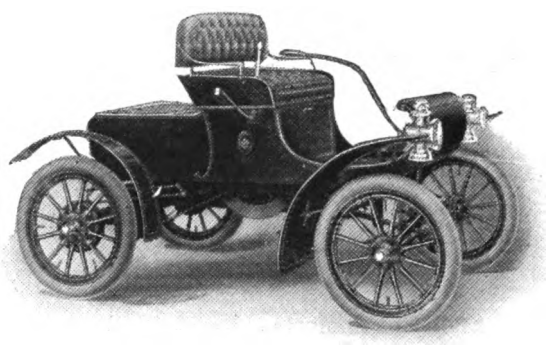
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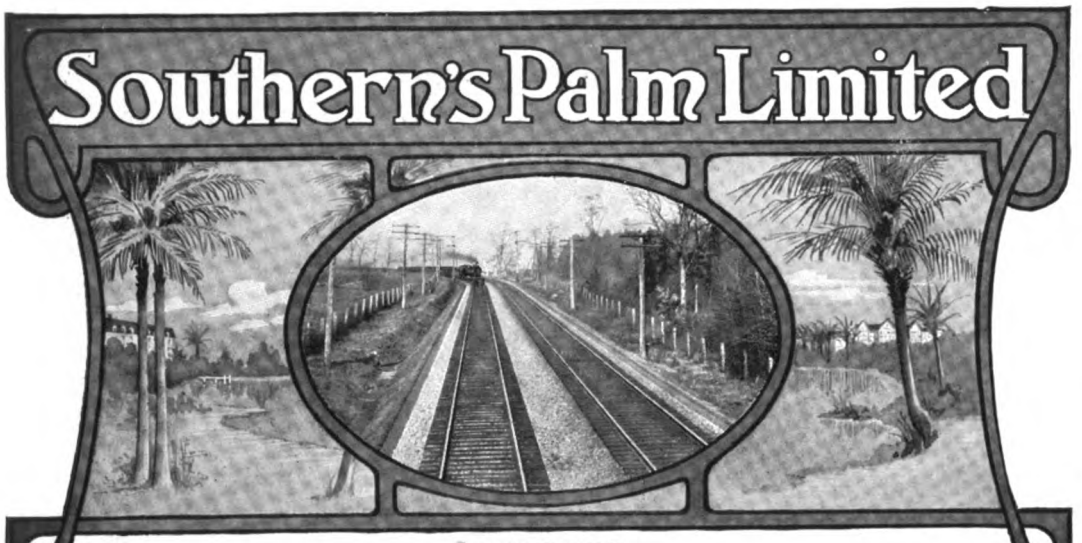
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THE ORMOND-DAYTONA AUTO MEET

An augury of the intense interest taken in the third international automobile tournament, to be held on the famous Ormond-Daytona Beach course in Florida, from January 23 to 28 inclusive, is evidenced by the fact that early in November over one thousand persons had already engaged quarters at Ormond for this meet. Nearly one hundred extra rooms have been added to the Hotel Ormond, a large garage has been built to accommodate one hundred racing machines, the most daring and noted drivers from all sections of America and Europe will participate in the event, a large number of the best made European cars have been entered, American manufacturers are straining every nerve in the construction of a score or more of powerful machines with which to meet the foreign invaders, and Sir Thomas R. Dewar, M. P., who is often a motoring companion with King Edward and has given a $2,000 trophy to be raced for at the coming tournament, will come over and act as one of the referees.

The tide-rolled sands of the Ormond-Daytona Beach present ideal conditions for the sensational smashing of existing records, and it is confidently prophesied that the meet of 1905 will go down in history as the greatest automobile event ever known. The principal race will be the 100-mile event for the Vanderbilt trophy, and almost equal in importance will be the mile international record for the Sir Thomas R. Dewar trophy. The 50-mile event, open to American cars will provide a great race, and another also of importance will be the 10-mile American Derby, which will be a sweepstake. And every driver of a big car has designs on the mile record of 39 seconds held by William K. Vanderbilt, Jr., who will himself go to Florida to give battle for the record.

In all, there will be four days of racing and two days of record breaking. The last three days (February 1 to 3, inclusive) of the week following the Ormond meet will witness the first annual motor boat and water carnival at Palm Beach, Fla., under the auspices of the Palm Beach Power Boat Association, for which valuable prizes have been donated by several well-known people, and at which Sir Thomas R. Dewar, M. P., has consented to act as one of the officials.

The quickest and most luxurious train service and the most interesting and attractive route from the North to the scenes of the above outlined events are via the Southern Railway, which despatches daily from New York two through trains to Florida, to which will be added on and after Monday, January 9, the "Southern's Palm Limited," the most luxurious and famous winter tourist train running to the land of sunshine and flowers. For further and full information, call on or write to Alex. S. Thweatt, Eastern Passenger Agent, 271 or 1185 Broadway, New York.

HOW TO KEEP WARM WHILE DRIVING A CAR

Those who have driven much in the winter know the difficulty of keeping warm while driving a car.

It is not so much the body which feels the nip in the air; a fur coat and leather waistcoat or chamois underclothing will effectually keep away King Frost from the body.

In default of a fur coat, an excellent protection against cold is to don a thick overcoat and to put over this a good mackintosh.

Warm wool or fur-lined gloves will protect the hands, and a wool-lined cap with earflaps will keep one's head warm. The main difficulty is to keep the feet warm.

If the foot-wear is thick and clumsy, it becomes a matter of difficulty to manipulate the pedals with any degree of sensitiveness.

Experiments have been made with pipes led from the water system, but has been found to interfere with the efficiency of the pump.

With the modern honeycomb radiator placed in front of the engine the necessary piping and its couplings are a nuisance, and sometimes act as a short-circuit either of the radiator or of the foot-warmer.

The writer has hit on the plan of conducting a portion of the exhaust gases from the engine to form a radiator. One end of a length of three-eighth-inch copper tube is coupled by means of a union, on to the exhaust pipe at a convenient point. This is carried along the dash and close to the footboard, and is coiled in a spiral or basket shape, and forms a pocket or foot-muff close to or encircling the pedals, which must, of course, be left free to work.

The other end is conducted back to the rear end and near the outlet of the exhaust box. A tap is put in a convenient place in the length of tube which allows the driver to turn on the heat at any time.

As this piping becomes very hot, it is necessary to keep it out of contact with any woodwork.

The spiral tube foot-warmer may be covered on the outside with an asbestos-lined tin covering.

With a single-cylinder motor it may be necessary to have the tube of larger diameter, say, one-half inch, and to wrap it round with asbestos lagging from its union with the exhaust pipe as far as the foot-warmer. Should the radiator not become sufficiently warmed it is only necessary to disconnect it at its union with the exhaust box and allow the gases free access to the air.

By this simple fitting one has a foot-warmer which is under perfect control, as the tap may be partially opened to allow of only a small quantity of the heated gases circulating.

In order to insure efficiency it is necessary to tap the exhaust at a point as near the exhaust valves as convenient, and to lead the outlet end of the pipe into the exhaust box as near the outlet as possible.

In addition to acting as a radiator, it reduces the back pressure of the exhaust, as it provides a larger expansion area.—[*Motoring Illustrated.*



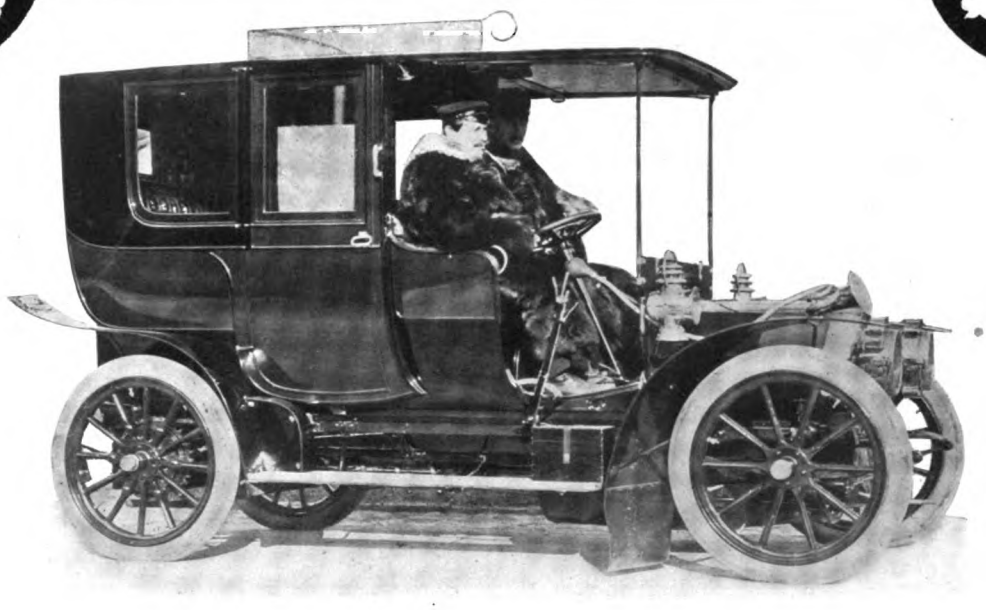
A COSTUME SUGGESTION BY MR. LOWE OF CALIFORNIA

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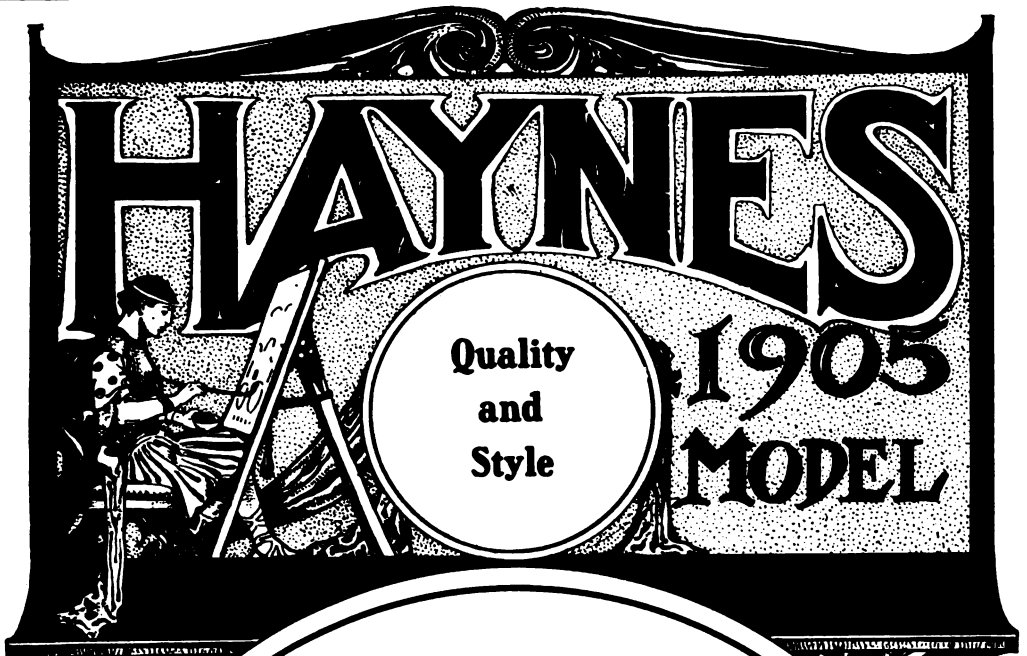
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HANDSOMELY ILLUSTRATED CATALOGUE ON APPLICATION

Motoring in Society

(*Continued from page 31.*)

No matter how much the young couple may be devoted to horses, it is held that they cannot possibly do without a motor car. Though Colonel William Jay, as president of the New York Coaching Club, is more prominently identified with horses than almost any man in New York, yet he made a point of giving an electric brougham to his pretty daughter Eleanor, when she married Arthur Iselin last month. Miss Elsie Waterbury, whose engagement to Gouverneur Morris has just been announced, has already made it known that she expects at least a couple of motors among her wedding presents, although the name of Waterbury is much more identified with equine sport than with motoring. Elsie Waterbury is a remarkably pretty girl, who made her debut some three years ago, and is as much at home in the saddle as she is at the lever of a swift motor car. Her brothers are celebrated on both sides of the Atlantic as polo players, and her parents, the James M. Waterburys, have long been prominent among the Westchester County set, the amateur circus which they gave at Westchester some ten years ago being still remembered as a function that has never been equaled either before or since in the annals of entertaining in New York. Gouverneur Morris, the fiance, is the fourth to bear that name.

* * *

President Loubet, though he has not yet taken to motoring, differing in this respect from most of his monarchical fellow rulers of Europe, nevertheless presided in accordance with his wont at the opening ceremonies of the great automobile Salon last month at Paris. As he returned several times afterwards to examine the show more closely and in greater detail, hopes have been expressed that he may yet take to this form of locomotion. But I doubt it. For the worthy and popular chief magistrate of the French Republic is of peasant birth, which he has never endeavored to conceal, and there is something in the peasant blood all the world over that is antagonistic to the motor. The existence of this prejudice of a somewhat unreasonable character is constantly cropping up and manifesting itself in all sorts of queer ways, and is accountable for many of the trials which motorists have to endure at the hands of rural authorities in Europe. And, inasmuch as President Loubet's one dream is to retire to his southern home on the close of his term of office and to spend the remainder of his days among the people in whose midst he was born and reared, he is certainly not going to estrange them at this juncture.

* * *

At least three great mansions are now being constructed in the French metropolis each his southern home on the close of his term deserving of particular attention in this paper from the fact that their owners are dispensing altogether with stables for horses and carriages and devoting the entire space that would have been taken up thereby to huge garages for motor cars and living rooms for chauffeurs. One of these houses, being built by a New Yorker, just opposite the Chateau de La Muette within the city walls, has a garage in which there is accommodation for no less than twenty motor cars. And yet this New Yorker is a bachelor.

* * *

This information comes from *Motoring Illustrated:* "We regret to hear from Clarence Gray Dinsmore that, owing to illness, he has been obliged to abandon his projected trip to India. He intended to take with him a 90-horse touring Mercedes and a 60-horse car of the same make. He gives us interesting news of the Vanderbilt Cup race. Werner, who was driving the 90-horse which Jenatzy drove in the Cup race got her off splendidly. On the second round the two hind cylinders burst and ripped clean off their base. This could only happen by reason of the piston seizing or premature ignition."

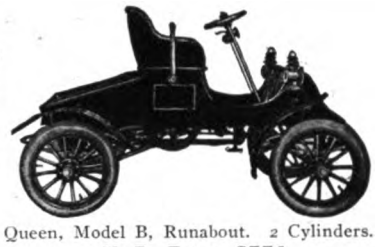
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Queen, Model D, Touring Car. Side Door Entrance.
4 Cylinders, 24 H. P. **Price, $2000**

THE QUEEN



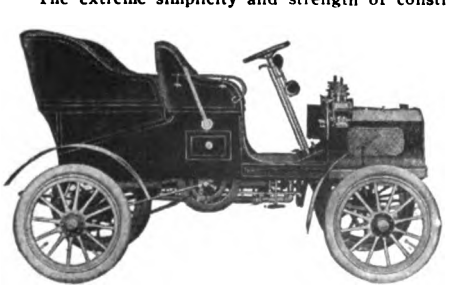
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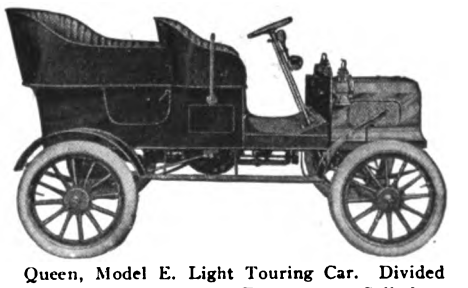
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MOTOR CRAFT OF THE AIR

By Aeronauto

Whether it is generally believed or not that man ever will attain perfection in methods of transportation, there can be little doubt that if such perfection is to come, it must assume the form of the successful airship. No other means of locomotion offers such tremendous possibilities, despite the partial obscuration of these at present by tremendous difficulties.

Locomotion overland requires highways of one sort or another; and no matter how effective the finished system may be, the building even of the poorest wagon roads, not to speak of railways, is a slow and laborious and expensive process, requiring lifetimes for perfection, if not for completion, and not at all to be entered upon until it is certain that the traffic from some particular point to some other particular point will justify the undertaking.

Overseas the problem of the highway does not exist, but water craft seem not capable of really great speed, though this fault is largely compensated for by their very great carrying capacity. Moreover, the waterways do not extend everywhere; and, to many places to which they do extend, the weather conditions, depth of channel, and so forth, are such that for much of the time their utility is suspended, or perhaps for all of the time confined to the floating of light vessels, of small carrying capacity and speed.

The air alone extends everywhere, and, if utilizable at all as a medium of travel, would be utilizable always and at its highest efficiency. It is a fundamental fault of all means of land transportation that the absence of long stretches of perfect and amply-wide highways makes the maximum speed capacity of the best road and railway vehicles only occasionally safe and available. Motor vehicles actually have been run at a speed (104 miles an hour) which if maintained would take them around the world in ten days, or across the American continent in 29 hours. Railway vehicles have been speeded up to 132 miles an hour, which speed if maintained would be equal to the circuit of the globe in eight days, or from New York to San Francisco in 22 hours. Such are the speeds that the genius of the engineer already has provided mankind, but which the prohibitive expense of perfect and sufficient highways renders totally unsafe and unavailable. On the sea, where free radius of action is possible, it is notable that the average speed of the fastest steamships is very close to their maximum speed. This will be even more the case with vehicles that fly.

There is every reason to believe that the airship will, when perfected, be the speediest vehicle known. There are several birds that fly at speeds of about 200 miles an hour, and there is warrant for thinking that, except for the increased difficulties of starting and stopping, the problem of flight will be much simplified by the incorporation of very high speed as one of the conditions of operation. A speed of 250 miles an hour, which judged by the facts of bird flight does not seem unreasonable, would mean the crossing of the Atlantic ocean between sunrise and sunset of the same day. The chief advantage of very high speed is that the efficiency of the aeroplane is known to increase much more rapidly than the speed, a doubling of speed quadrupling efficiency, etc.

Doubtless aerial navigation, however perfected, always will possess its peculiar dangers, which will be reduced, but not avoided, by increased reliability. Perhaps the mere failure of the propelling means, but certaintly the failure of such safety devices as may be provided, inevitably must result in disaster. Nevertheless, this condition would be offset by certain compensations. The danger of collision, not only with other airships, but with anything else, even at unheard-of-speeds, would be practically non-existent. A clear view always ahead, and the possibility of changing course at will, not merely to the right or the left, but to a higher or lower level, would constitute almost perfect safeguards against such danger.

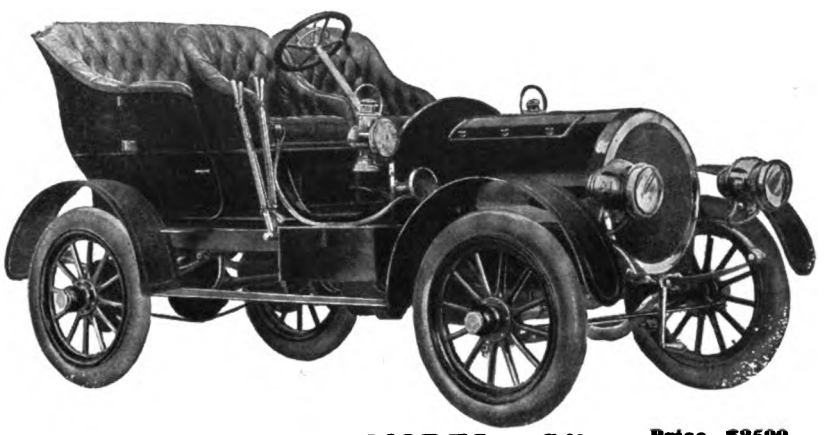
The birds fly: why not man? Why is this not an unanswerable argument to sceptics who contend that, despite the advancing mechanical genius of age, it never will be possible to construct a machine that will do battle with the winds, and transport its maker whither he listeth through the blue empyrean? Man builds torpedo boats that go faster than the fastest fishes in the water, and he builds land vehicles that can outrun the jackrabbit and greyhound. Why, then, is it to be forever impossible for him to emulate the birds in their native element?

To many who have given the subject little thought, it perhaps does seem unreasonable to expect the air to carry weighty craft, laden with freight and passengers, but it must be remembered that the air is hard enough if you hit it fast enough. No engineer who has had occasion to realize the tremendous resistance that is offered by the otherwise almost imponderable air, when it moves fast or something is moved fast against it, can doubt the ultimate triumph of the far-seeing enthusiasts, who are seeking some practical method to make of the invisible vapor we breathe and feel a trackless and infinitely-extending highway through which the generations of the future will travel as a matter of course.

It evens seems likely that there may be people now living to whom one of the commonest sights of every-day life will be that of marvelous aerial craft, which will level mountains and bridge the seas, which will abolish roads and railways and ships, which will revolutionize both warfare and commerce, and which will all but annihilate time and space.

Not a decade ago the motor-driven land vehicle was looked upon as only a probability of magnitude. And in such manner is the motor airship now judged by the multitude.

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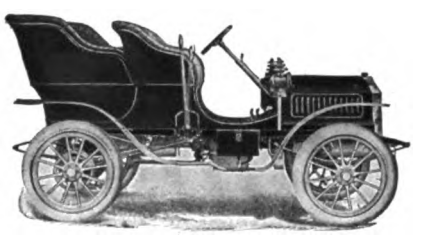
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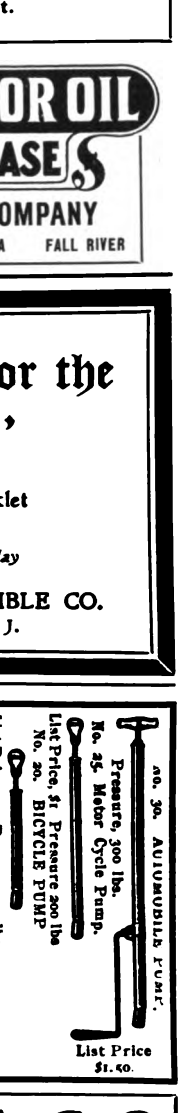
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GOSSIP OF THE RACE.

It is evident that the bad roads of the United States still keep American motorists and motor manufacturers from seeing much of utility or interest in long-distance motor-car racing on the highroad. The Automobile Club of America's entry lists for American contestants in the 1905 International Cup Race closed on December 15, and despite general hope and even expectation to the contrary, only three entries were filed.

Even with this poor numerical showing, however, American chances of winning are by no means dashed to the ground. Two of the entries are 90-horsepower Pope-Toledos, one belonging to Colonel Albert A. Pope, and the other now building for W. T. Muir of Lexington, Ky. No one who saw the 24-horsepower, stock Pope-Toledo, driven by Herbert Lytle, beat fifteen foreign and domestic cars, most of them specially built for racing, and piloted by the experts of two continents over the 300 trying miles of the Vanderbilt-cup course, can doubt that in the next running of the great motor Derby the genius of the Yankee mechanic will at least commence to come into its own, in this field as in ones in which it long has reigned undisputed.

The third American entry is a Locomobile, the property of Dr. H. F. Thomas, of Chicago, Ill. While the Locomobile heretofore has been little in evidence in racing events, if its reputation as a touring car is upheld in the International Cup Race it will keep both its supporters and its opponents interested.

In a series of races and exhibitions through the West, Barney Oldfield has tightened his hold upon his title of "King of the Circular Track." At Fresno, Cal., on December 13, with his 60-horsepower Peerless "Green Dragon," he annexed all the track records from 25 to 50 miles incidentally picking up the 15-mile record on the way. The 15-mile mark was reached in 1403 3-5—one and two-fifths seconds better than the record; at 20 miles he was a few seconds behind the record, though he drove furiously in the effort to beat it, and had the crowd wild with enthusiasm. At 25 miles he was over twenty seconds ahead of the record, his time being 2338 1-5; and the 50 miles he completed in 4839 1-5—seven minutes and two and four-fifths seconds better than Charles Gorndt's record.

Barney's next propitiation of the speed god was on the Agricultural Park track, at Los Angeles, Cal. Here it was the records from two to nine miles, inclusive, that fell. The times were: Two miles, 1:46 2-5; three miles, 239 4-5; four miles, 335; five miles, 4:29; six miles, 5:22 4-5; seven miles, 6:15 4-5; eight miles, 7:00 1-5; and nine miles, 8:04.

At San Bernardino, California, further efforts to rewrite the record slate resulted in an accident in which nothing but Oldfield's usual good luck saved him from death. While going at a pace of better than a mile a minute, a rear tire—"the rear hind tire," as one of the local dailies gravely stated it—was punctured, and exploded with a noise like a gun. The car instantly slewed off the track tearing up the embankment that surrounded it, and started on a cross-country trip. Fortunately there is no outer fence on the "San Berdoo" track, and, after plowing through soft soil and deep sand for a distance of over forty feet, the racing monster and its unhurt driver came harmlessly to a stop.

It is reported that E. H. R. Green, the son of Hetty Green, and president of the Texas Midland Railway, is attempting to secure a three-mile strip of land near Fort Worth, Texas, with a view to building a motor race-course. A perfect three-mile straightaway is said to be the plan, and, with a surface so smooth as to rival that of the Ormond-Daytona beach, of Florida. It is believed that competition between many of the fastest cars in the world will be insured.

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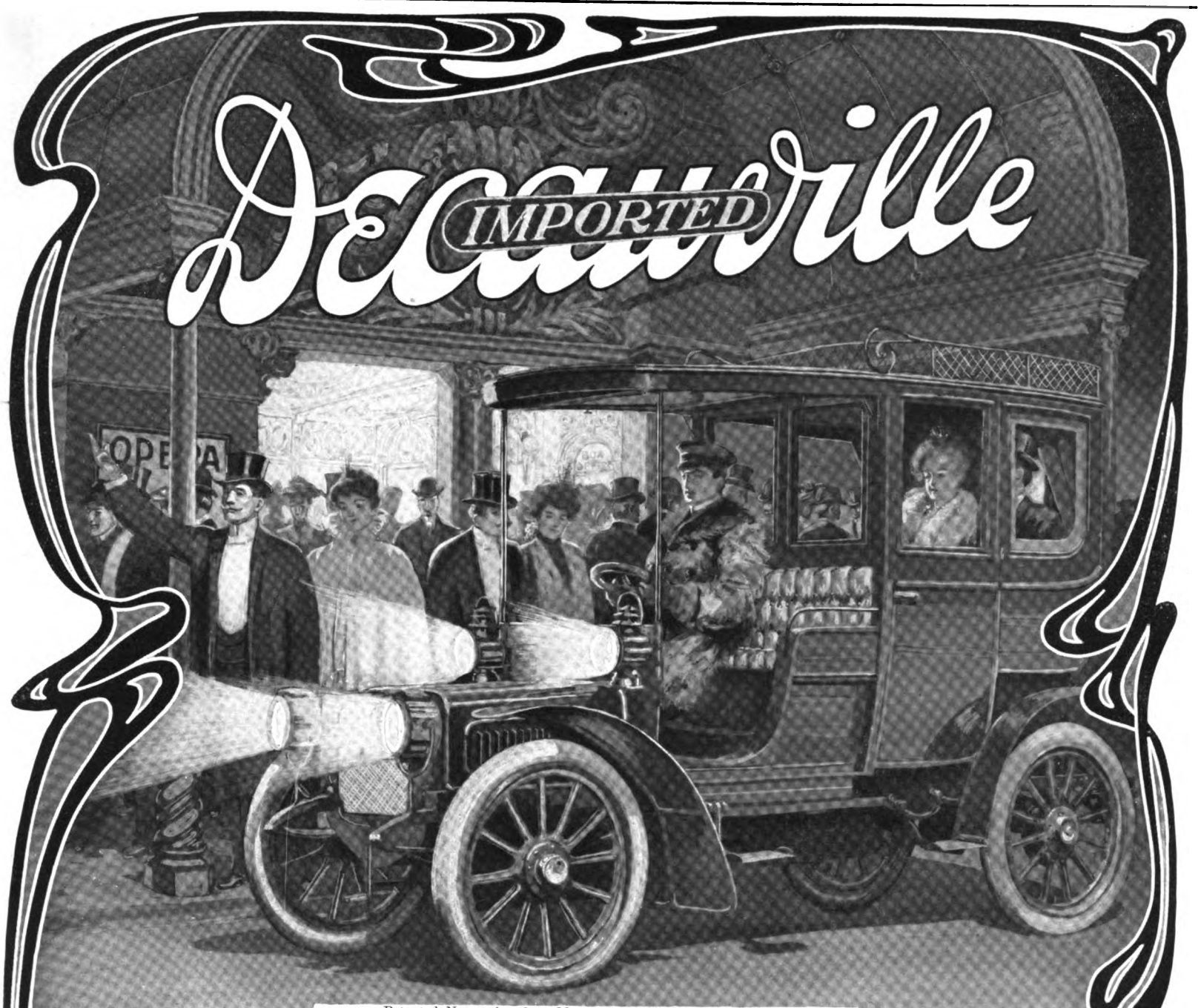
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¶ THEN there is that admirably conceived steel-pan which protects the entire mechanism from dust, mud and flying gravel. But this feature is scarcely to be compared with the fact that by having the entire engine rest on this steel-pan, which is solid, flat and unwrenchable, the shaftings and bearings cannot possibly get out of perfect alignment.

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Motor Messengers

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FOR SALE.—Latest model vertical, 4 cylinder, 20 H. P., water-cooled gasoline engine, by prominent maker. Suitable for car or boat. Cost $400 net, but will not fit car designed for, and will be sold at a decided bargain. Also one tonneau, body standard size; neither to be paid for before examination if desired. Norman Auto. Co., 2130 Susquehanna Ave., Philadelphia, Pa.

FOR SALE.—Oldsmobile; late model 1903; in first-class shape; 6 H. P.; used very little this year on account of having a large tonneau. Have no use for runabout and will sell it for $275 cash, or half cash and balance on good bankable note. U. D. Fortier, Grant Park, Ill.

FOR SALE.—Six latest 1903 Oldsmobile Runabouts; entirely new; fully guaranteed. Four more second-hand Oldsmobiles; first-class condition. Must be sold at once. Prices reasonable. R. D. Chapin, 1312 Jefferson Ave., Detroit, Mich.

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STAMP brings special bargain sheet. Saves you 50 per cent. on the second-hand automobiles, gears, bodies, motors, stationary engines, lathes and all kinds of machinery. I sell, buy, and exchange. Get my prices. T. S. Culp, Canton, Ohio.

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OLDSMOBILE owners, equip your car with our 100-mile touring Radiator, price $15.00. Bliss-Chester Co., Providence, R. I.

FOR SALE.—1903 Altman runabout in excellent condition; 9-H.P.; seats two or four; good hill climber; send for photo; $300. Also two 32 and one 36 by 2½ new Hartford tires, $12 each. E. H. Davis, Evart, Mich.

MOTOR CALENDAR

JANUARY, 1905

SAT. 7 to Jan. 22	Motor-Car Show, Turin.
WED. 11 to Jan. 24	Importers' Salon, Herald Sq., New York
SAT. 14 to Jan. 21	N. A. A. M. Show, Madison Square Garden, New York
SAT. 14 to Jan. 26	Salon, Brussels, Belgium
SAT. 21 to Jan. 28	Motor-Car Show, Birmingham, England.
MON. 23 to Jan. 28	Ormond-Daytona Tournament, Florida. Entries close Jan. 13
MON. 23 to Jan. 28	Motor-Car Show, Philadelphia, Pa.
FRI. 27 to Feb. 4	Motor Show, Crystal Palace, London, England.
JAN. and FEB.	Motor-Car Show, Bombay, India.

FEBRUARY

WED. 1 to Feb. 3	Motor-Boat Races, Palm Beach, Florida
MON. 4 to Feb. 11	N. A. A. M. Show, Coliseum, Chicago.
SAT. 4 to Feb. 19	International Motor Show, Berlin, Germany.
SUN. 5 to Feb. 19	Motor Week, Nice, France
THURS. 9 to Feb. 12	International Motor Car and Motor Boat Carnival, Havana, Cuba
MON. 13 to Feb. 18	Motor-Car Show, Detroit, Mich.
WED. 15	Turin Salon, Italy
TUE. 25 to Mar. 11	National Motor-Boat and Sportsman's Show, Madison Square Garden, New York City
FRI. 24 to Mar. 4	Motor-Car and Cycle Show, Edinburgh, Scotland
MON. 27 to Mar. 11	Motor-Car Show, Cleveland, Ohio
MON. 27 to Mar. 4	Motor-Car Show, Toronto, Canada

MARCH

FRI. 3 to Mar. 11	Motor-Cycle Show, Liverpool, England
MON. 13 to Mar. 18	Motor-Car Show, Boston, Mass.
SUN. 5 to Mar. 11	Motor-Car Show, Buffalo.
WED. 15 to Apr. 9	Motor-Car Show, Copenhagen, Denmark
SAT. 18 to Mar. 25	Motor-Car Show, Agricultural Hall, London
MON. 27 to Apr. 5	Motor-Car Show, Washington, D. C.

APRIL

SAT. 1	Light Van Trials of A. C. G. B. I., over course of 2,000 miles.
	Mediterranean Cup Race.

JUNE

Kiel Fortnight

JULY

SAT. 15	Motor-Boat Contest, Calais to London

AUGUST

THUR. 10	Motor-Boat Race for Gaston Menier Cup, Trouville, France
FRI. 11	Motor-Boat Race for Drexel Trophy, Trouville, France
SUN. 20	British International Cup Race.

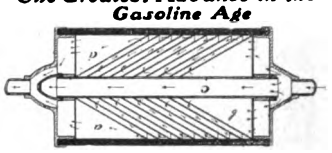


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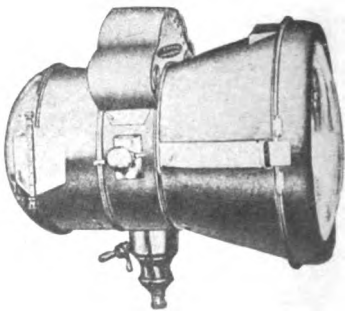
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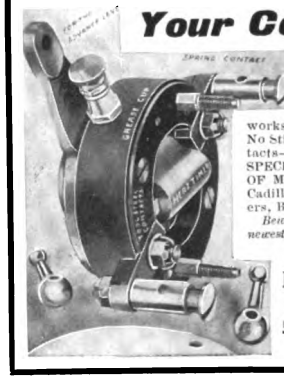
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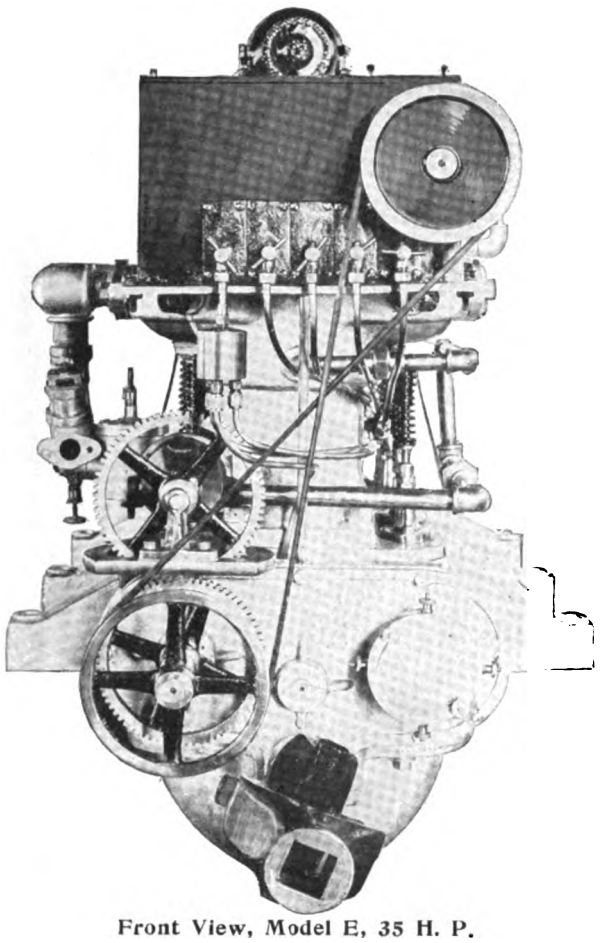
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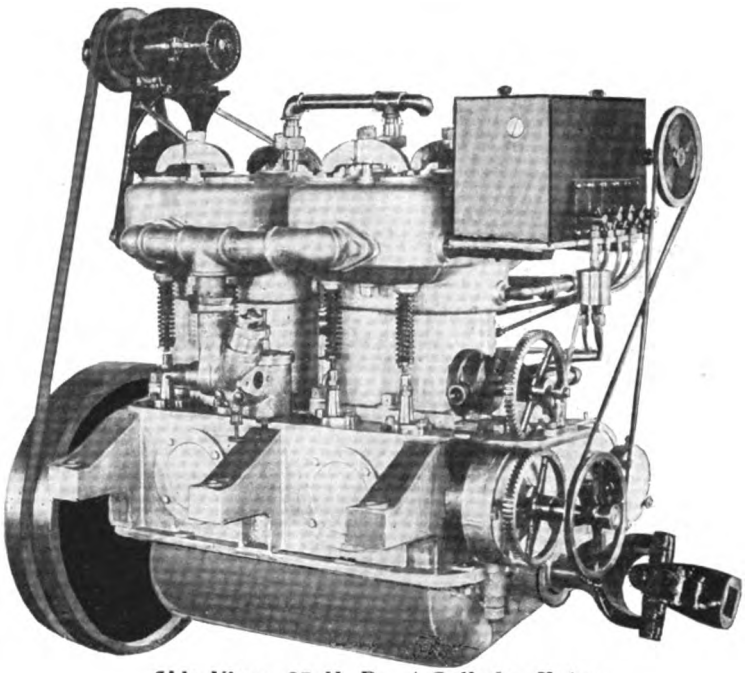
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Front View, Model E, 35 H. P.
4 Cylinder Motor



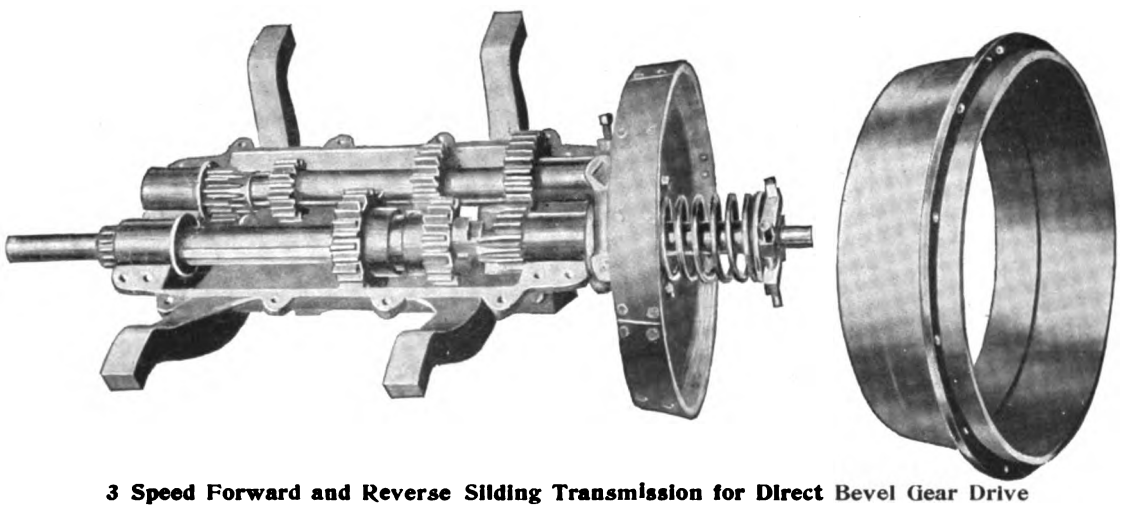
Side View, 35 H. P. 4 Cylinder Motor

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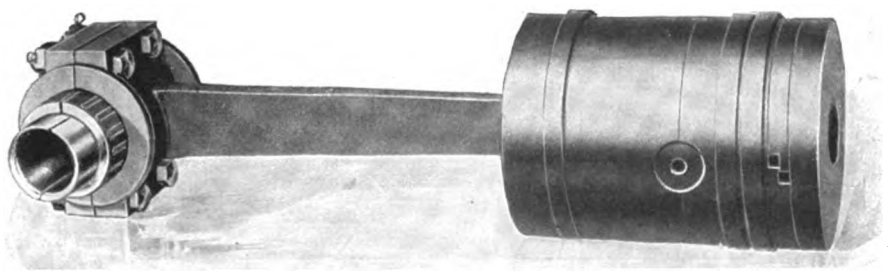
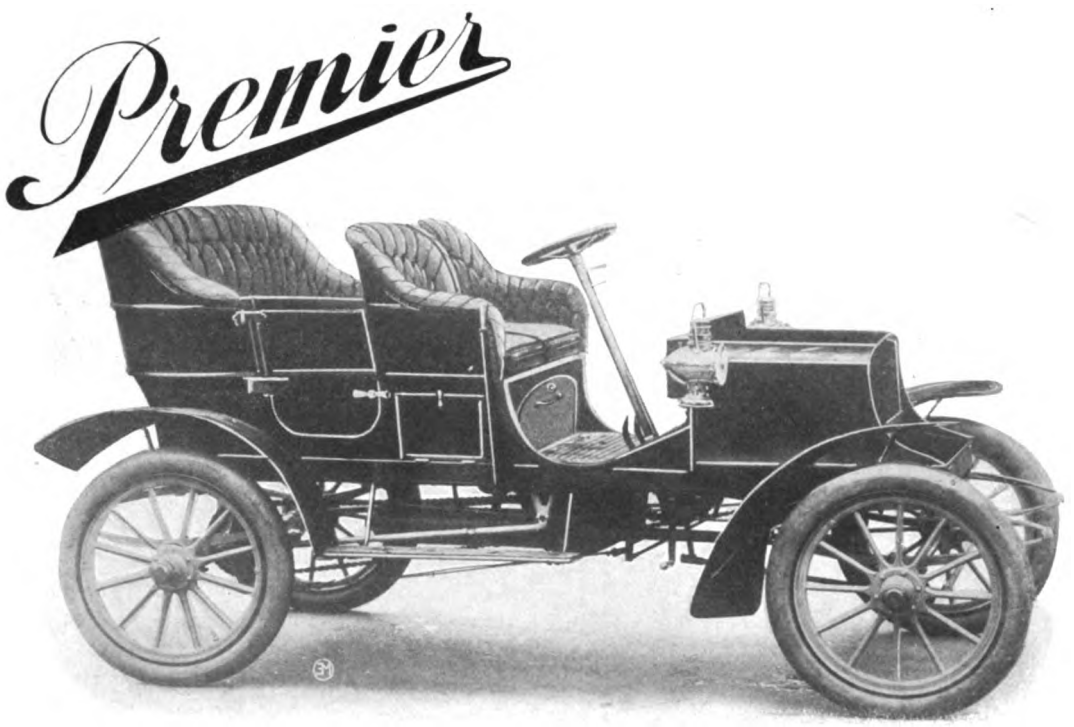


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PARABLE OF THE MOTORIST

By J. C. Cunningham

Man that owneth a motor car is of a few days and full of trouble.

He cometh forth like a flower and is cut down; he fleeth also as a shadow but continueth not far when the cop taketh him in.

His troubles tickleth the devil nearly to death and bringeth the wrath of God.

His horse friends curseth him afar off and fleeth to side roads as they leteth him pass.

He covereth his face with a mask, and rideth forth in the morning, glistening with the colors of the rainbow, and looketh not to the right nor to the left as he fleeth from the officers that prevaileth against him.

He goeth not far, however, before he hath troubles and stoppeth by the wayside and knoweth not why.

At first he looketh into his battery box that he might behold if there be loose connection.

Next he investigateth the plug to see if it sparketh properly, and if it sparketh according to his liking, he wondereth, saying, what is it? For he knoweth he is up against it.

Next he stretcheth forth his hand and proceedeth to turn a handorgan crank and crankeeth to a finish, but it availeth him naught.

His soul is weary of life when he perceiveth there was nothing doing, and he at once proceedeth to exploreth the buzzer.

And he sayeth unto himself when it appearth all right, how long will it be, O God, e'er ye maketh me understand this mystery.

And he casteth off his coat and stretcheth forth his hand and proceedeth once more to manipulate the handorgan crank with a vengeance that nearly capsizeth the vehicle, but all this resulteth in naught.

Next he investigateth the carbureter; yea, he entirely taketh it apart to a multitude of pieces, but findeth nothing that indicateth mischief. He then looketh into the gasoline tank, which he expecteth to find empty, but it has an abundance of fuel, and he knoweth not yet what troubleth him.

He lieth himself down on his back beneath the car and gazeth up into its mechanism, while the grease drippeth on his flushed face, and triest hard to discern that which stoppeth his progress, and still he discerneth nothing.

He remaineth there a long time, and wondereth why the Omnipotent curseth him with trouble, and in his meditations he careth not if he were dead and his spirit departed to the evergreen shore.

And as he lieth there and meditateth unto himself that which concerneth the motor car, of what is to be but is not, he desireth deep down in his heart that he had liveth later on when the Lord will have educated man that the machine will be more perfect.

And he is not alone in his sorrow; a countless multitude surrounds him and two good men among them, that foundeth favor in the sight of God; one Alfonso, the other Gaston, insisteth in offering all kinds of assistance, but they availeth him naught.

Others offereth him a horse and adviseth concerneth the horse.

And he arose up in his anger and curseth them to a "fare you well" until they all disperseth in the distance.

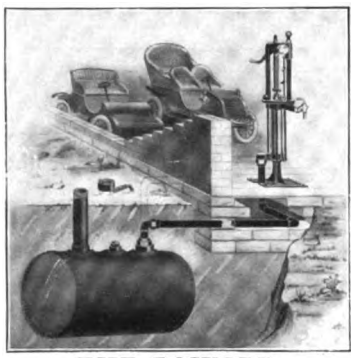
And he stretcheth forth his hand again and taketh hold of the handorgan crank and turneth only one turn, and behold the motor motoreth, and he proceedeth on his way as if fleeing from the wrath to come.

The motor car puzzleth ofttimes the expert, and he wondereth greatly at its mysteries.

They are like unto women, that man understandeth not, but possesseth one if he hath the wherewithall to do so, and it mattereth not what troubleth him. Yea, he even goeth to the bottomless pit of hell for her.

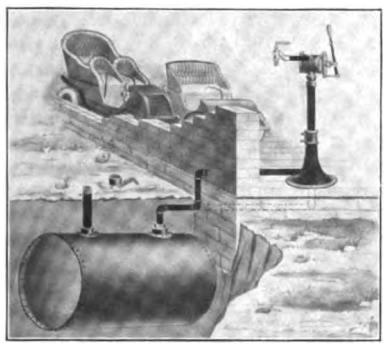
Both fascinateth; both are fickle; both taketh money; both are beautiful with paint and trimmings, but neither are what the scribes and advertisements cracketh them up to be. They needeth fixing.

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Heavy tank rivcted and soldered and buried outside of building.
Pump drawing positive quantities at most convenient point in interior.



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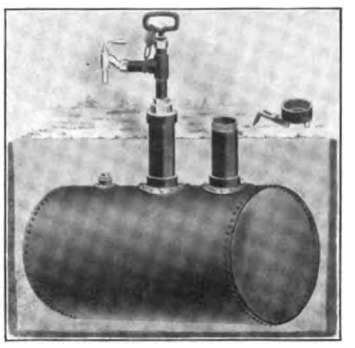
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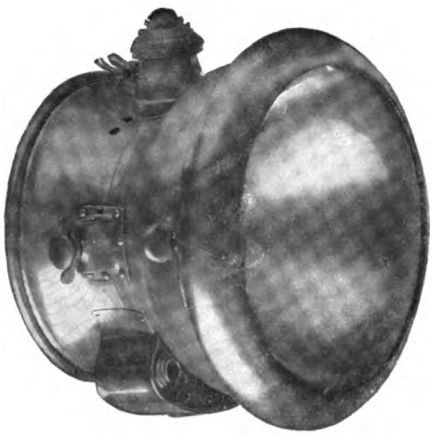
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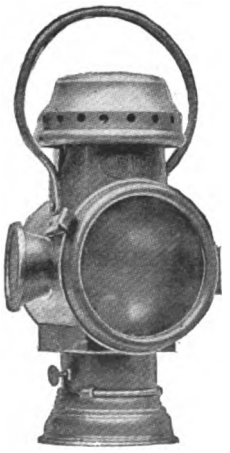


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FROM A MEDICAL POINT OF VIEW

By A. Butler Harris, M.A., M.B., Oxon, in The Autocar

My experience is that the doctors are afraid of changing their mounts. This was certainly a sensible view in the earlier days, but during the last year or two cars have become so reliable that with reasonable care a doctor ought always to keep his appointments without any fear of failure.

I have been driving for three years now, and began with a 3½ horsepower De Dion. After eighteen months the De Dion was changed for a two-cylinder car of heavier build, because I found the runabout too light. This car proved too heavy and too expensive in tires, and I am now running what to my mind is a perfect car for a doctor with a wide radius in hilly country, namely, a 15-horsepower four cylinder Ariel, with a very light tonneau body. During the winter I am going to protect with a Cape cart hood. This car costs about threepence a mile to run, and will more than average the legal speed, if allowed. Of all the cars I have driven it is the most silent, perfectly sprung, and free from vibration.

Its daily work is thirty to forty miles. It takes a man from one and a half to two hours to thoroughly wash, lubricate, fill up, and look over. Compare this with horses. Four horses and two men in the stables could not do the work done by the Ariel and my gardener. Further, there is the enormous saving of time on the daily round and the enjoyment and fascination of a fast, smooth-running motor car. Contrast this with the old picture of the tired horses, the daily worry of being behind time, and the consequent irregularity of meals. Again, night work has lost its terrors, for the car is ready at a moment's notice.

I see all sorts of runabouts, good and indifferent, recommended for doctors, apparently because they are cheap and fitted with a hood. These are generally noisy, shaky, and unreliable. I have hopes that a single-cylinder car eventually be evolved which will be fit for a doctor to live in, for a doctor's conveyance is more lived in by him than his house. At present give me a four-cylinder car with a long wheelbase, to save wear and tear of mind and body. If I were a town doctor, I should certainly run an electric landaulette, or if I lived in a country town or suburb away from a charging station a petrol-driven landaulette, and let my man drive me, as frequent stoppages and startings are tiresome. But the country practitioner, with a wide range, if he wishes to economize, had best economize by driving himself, and possess a good car, rather than save money in the runabout and be driven. Again, I prefer a four-cylinder car to one or two cylinders, because it is so easily started, and I never take my man, except in very bad weather.

The modern motor car needs no resident engineer; in fact, it is better without his meddlesome ways. Most doctors are mechanical, necessarily, and are trained in observation and attention to detail. Little more is needed. The few adjustments necessary can be better done by him or under his direction than by the average cocksure, slap-dash so-called mechanician. I have tried them with a view to saving myself, but I have found that the car never went the same two days running. It is just the same with the electric light plant—it always goes wrong when a mechanic is about the place—and it is well known to country houses that the gardener makes the best electrician.

To sum up, my experience is in favor of a light (sixteen hundredweight) four-cylinder car, costing considerably less than four horses, and doing the work in less than half the time. The car becomes a hobby and a pleasure. It can be used for Sunday runs and for touring in the summer holiday. My wife and I have for the last two years made this our practice, carrying a luncheon basket on board, and picnicking where and when we listed. We find the more we motor the more we want to, and that motoring is good for the brain and good for the body. Entering a patient's room after a long, weary horse drive, often have I listlessly half dropped asleep, and not been up to the mark. Driving the motor keeps one keen and alert, watchful and ready, and engenders that quickness in thought and action which is so needful to the doctor.

I am often asked if driving does not make my hand shaky. Certainly not on a four-cylinder car, and my eye is keener and my hand steadier for the healthful rush through the air than if I were mewed up in a brougham.

Conventional medical dress is not necessary nowadays, and is out of place on a car. I advise all users of cars always to wear goggles, particularly in the summer. There is no doubt that permanent injury may be done to the eyes in time by repeated attacks of conjunctivitis from gnat bites and dust particles, apart from the rush of drying air.

Catching cold—one does not catch cold on a motor or feel the cold nearly so much as when driving in a dogcart. The swift pace and the quick journey, I suppose, are stimulating to the circulation, and there is not so much time in which to get cold.

Motor's List of Names and Addresses

Of Motor-car Owners, Prospective Owners, and Trade, if not the largest in the country, is certainly the most alive and up-to-date. This list is constantly being enlarged and revised, and is obtained from all possible sources of information.

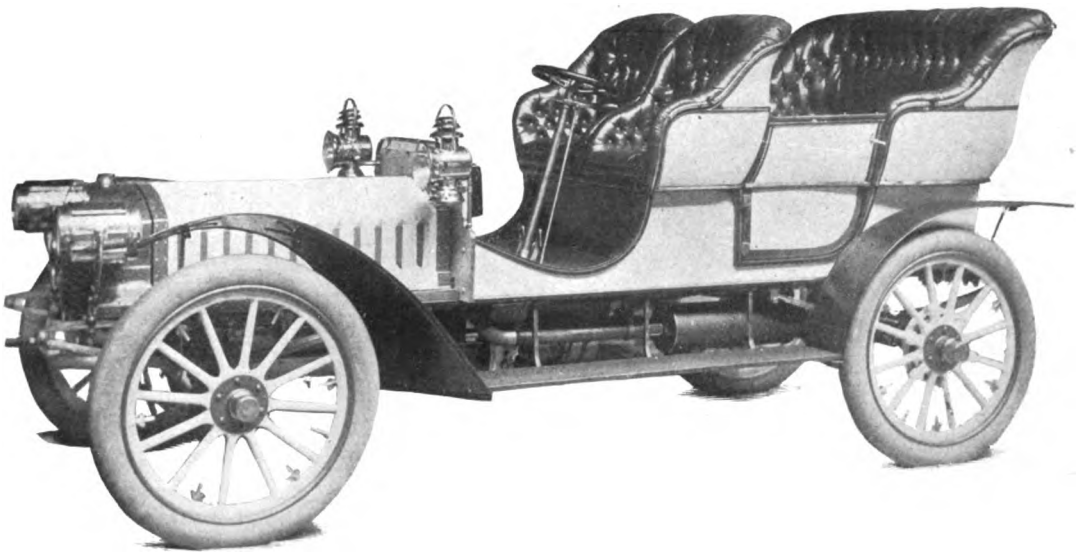
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Write for rates, etc., to

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50 H. P.
2400 lbs.
$3,500.00

SAME MODEL

35 H. P.
2350 lbs.
$3,000.00

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Powerful
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National Richard Agency

141 West 55th Street New York

Motor's List of Names and Addresses

Of Motor-car Owners, Prospective Owners, and Trade, if not the largest in the country, is certainly the most alive and up-to-date. This list is constantly being enlarged and revised, and is obtained from all possible sources of information. If you intend circularizing motor-car owners, prospective owners, or the trade, MOTOR'S List is the best.

Write for rates, etc., to

MOTOR

1789 BROADWAY : NEW YORK CITY

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COMFORT

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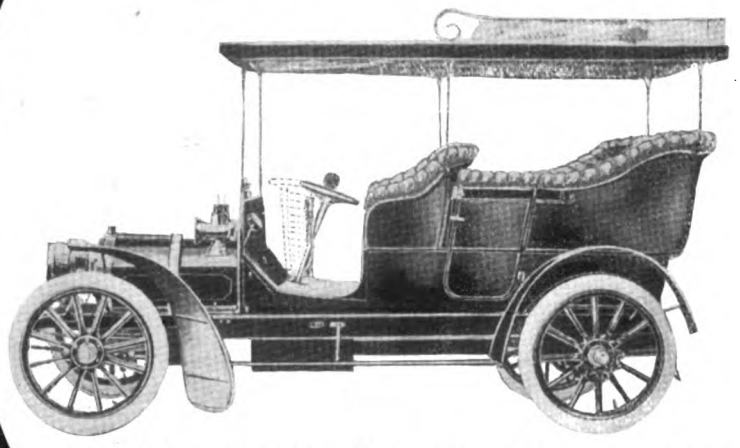
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THE UNITED MOTOR & VEHICLE CO.

TEMPORARY OFFICE, 150 NASSAU ST. NEW YORK, N.Y.

The 1905 Steamer

A High-Grade, High Power, THOROUGHLY BUILT STEAM CAR. Power unit located forward. Non-Explosive, Indestructible, Flasher Type Generator under hood. Four Cylinder 25 H. P. Single-Acting Engine.



Kerosene Burner. Powerful Adjustable Pump Direct Drive. Swinging Self-Locking Wheel Column. Noiseless, Odorless.

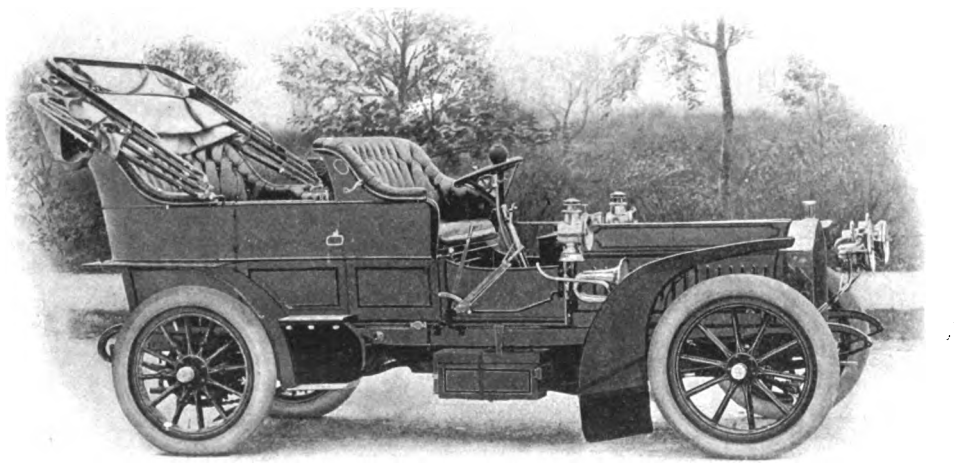
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Motor P.



"Six Cylinder 30 H.P. Napier"

NAPIER cars mark a distinct and radical advance in Motor Car construction, and merit our claim that they are as near perfection as engineering brains have to date developed.

The NAPIER high tension single coil synchronized ignition apparatus ensures the actual firing of one cylinder before another cylinder has ceased firing, thus producing a continuous turning movement of the crank shaft. By this means such great flexibility is obtained that by merely manipulating the throttle the car can be driven from 4 to 50 miles per hour without changing from the high speed gear.

We invite their inspection in our Boston show rooms, and also at the coming exhibition in Madison Square Garden, New York, January 14th to 21st inclusive.

Napier Motor Company of America

743 Boylston Street BOSTON, MASS.

A FEW MOTOR FACTS

It has been estimated that for every one of the 50,000 motorists in the United States, there are ten hoping to become such. This would give a total of 600,000 who are possessed of a deep interest in the new vehicle. Of these 600,000 it is safe to say that by far the greater number are most disposed to consider low-priced vehicles—motors for men of moderate means. It is not invariably, however, that the question of economy governs a man's interest. In fact, there is every reason to believe that many who contemplate the ultimate purchase of a high-priced car think it well to commence with one less complex and luxurious, on account of the educational value to be derived from it.

This being the case, it is interesting to consider what the various manufacturers have done in the way of providing for this great and growing demand.

It generally is true that the higher-priced machines are the most comfortable and capable, but it probably is equally true that the others are the most widely available to the average customer.

The lowest-priced motor vehicles on the market are, of course, the motor cycles. Next after the two-wheeled vehicles come several tricycles, closely pressed in price by a small and widely-popular "buckboard" machine. The various runabouts, commencing with those designed exclusively for two passengers and ending with those built for four, or, in a few exceptional cases, five, complete the range of machines sold at less than $900 or $1,000.

The smallest sum for which a motorcycle can be had is $125; there are several which sell at $150. The average price of the best-known makes is $210 to $225; and a few cost as high as $300. A buckboard motor car and at least one other sell for $425; the runabouts commence at $500 and $550. Most of them cost $650 and $750, and a few run up to $800 and $850. Most of the latter will carry more than two people.

There is a popular notion to the effect that motor cars which can be had at low prices are in some respects less reliable than those larger and more expensive, but this is not the case. Any difference in price is, in practically every case of a standard care built by a reputable maker, based upon a difference in carrying capacity or a difference in the service for which a machine is intended.

Another factor in establishing the low prices at which so many small automobiles are sold is that fact that they are manufactured in such quantity as greatly to lower the individual cost of construction.

To allay the misgivings of those who hesitate between a desire for a high-priced car and ability to purchase only a low-priced make, it can be stated with positiveness that the smaller machine is in every way reliable and satisfactory, provided it is not proposed to place it in service for which it is not intended.

Neither high-speed nor long-distance touring should be expected of the runabout or other light car, but for the man who is willing to accept a comparison with the horse and buggy, everything is in favor of the machine and against the animal. There is not an automobile on the market that will not, under ordinary and reasonable conditions of service, regularly carry two people farther and faster and at a lower expense—counted either by the month or by the mile—than the best horse that ever wore harness.

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PETER'S UNION PNEUMATIC SIMPLEX TIRES

FOR MOTOR CARS

IN introducing the PETER TIRE to American motorists, we beg to assure them that they will use this superior German Tire with the same satisfactory results experienced by numerous users both on the continent and in England.

Manufactured by

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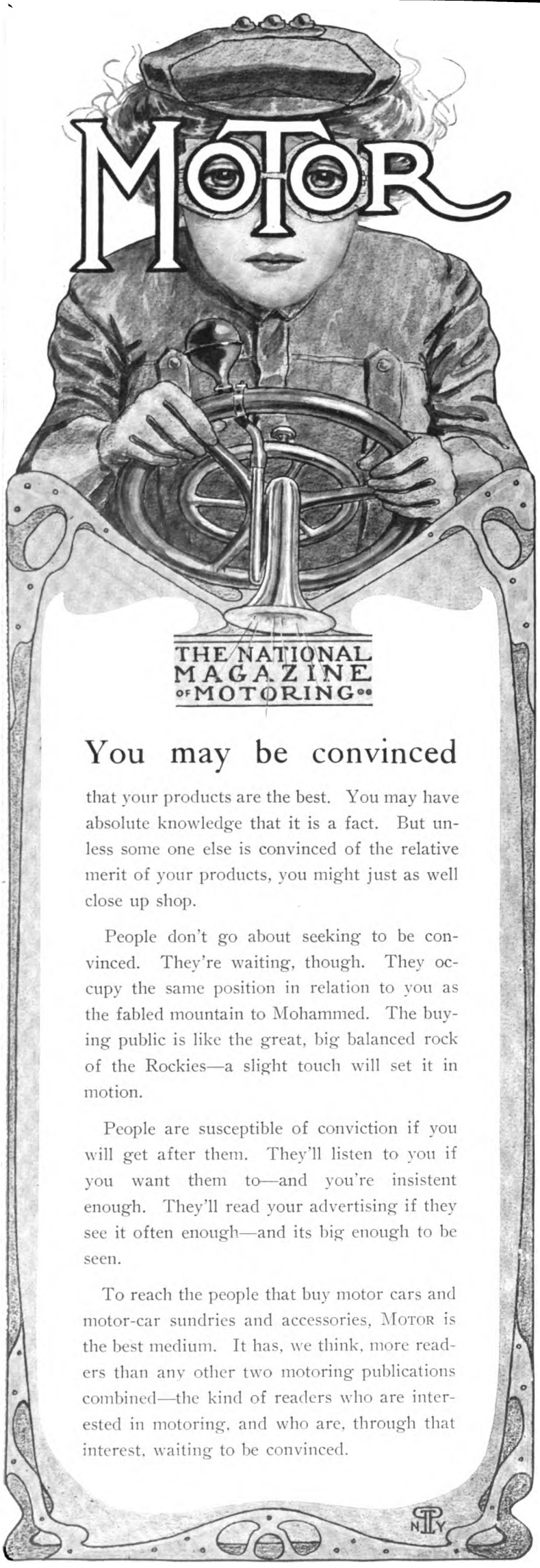
Frankfurt, Germany

For Information and Prices write

SOLE AMERICAN AGENCY

J. S. HELLER, 123 W. 52d ST., NEW YORK CITY

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FROM MOTORDOM'S CAPITAL

By Monsieur Carbureter

PARIS, December 15.—Théry and Caillois, upon their return from the United States, expressed opinions on motor racing in that country.

"It's not racing," said Théry; "it's a reckless proposition of breaking one's neck. Furthermore, our European machines are not made for such acrobatics. Take the fastest of them, and I defy anybody to win with them in America. No race course is to be compared with a fine road, with good hills, good descents, and beautiful straight stretches. As for the American tracks—don't talk to me about 'em."

When asked about their experiences with the New York Customs House, both Théry and Caillois became speechless.

The auto boat race tournament and exposition at Monaco next spring, under the auspices of the International Sporting Club de Monaco, is fixed for April 2 to 16. The exposition will be held on April 2, 3, 4, and 5, and the races April 9 to 16. The craft, for the races and for the exposition, is referred to as a "canot automobile," the length of which must not exceed 25 metres as a maximum. The honorary president of the committee is Prince Albert of Monaco. The long list of French members includes Baron de Zuylen, president of the Automobile Club de France, Marquis de Dion, Messrs. Henri Menier and Max Richard, and Prince Pierre d'Arenberg. America's representative is Clarence Gray Dinsmore, who is the European representative of the Automobile Club of America.

Prominent motorists are urging the Paris municipal council to grant permission to hold a race tournament, with flying mile and kilo-metre contests, on one of the drives of the Bois de Boulogne. The municipal council, however, does not hail the proposition with enthusiasm. In reality, said council has sat upon the project, and is still sitting on it.

Renault machines will be seen in the races again next year. That is to say, the firm will be again officially represented in some of the big events, and notably in the Gordon Bennett race. The announcement to this effect, made a short time ago by Renault Freres, is of considerable importance, as it marks what might be termed the end of the period of mourning which the firm has observed for more than a year and a half.

In the early part of 1903, during the Paris-Madrid race, while Louis Renault was arriving, first, in Bordeaux, his brother, Marcel Renault, was lying dead at the side of the road not many miles behind. The accident which cost the life of the prominent sportsman and tradesman, and which, with others of a similar nature, induced the authorities to prevent the race being continued to Madrid, threw such sadness upon the Renault institution that it was decided to abstain from all contests for a long period. The Renaults will be warmly welcomed back to the ranks, and it is a safe guess that the Renault will not be found wanting

I am reminded of the early days of automobiles and automobile racing—not that is was years and years ago, for it was in 1898 or 1899. It was when the "cycling crowd" was turning interested and wistful eyes in the direction of the new locomotion. Barclay, the veteran, the "cycliste enragé" of the last generation, a spry young man of then about 60 years, said to me one day: "Ah, Mon cher, I have a new little automobile seen which gives great promise."

"What it is is it?" I asked him, and he said it was called a Renault. He had seen Louis Renault on the road making a trial run with his new invention, which was endowed with one and a quarter horsepower, and which, strange as it may seem from the standpoint of the present, possessed a detail of construction that is among the most highly appreciated in the motor world of to-day. This was the principle of direct connection in the change-speed gearing. The recent history of the Renault in the big races is too well known to need any special reference at the present moment.

"Contravention au val" means arrest "on the fly." That is, you let your machine out on the road, a policeman or *gendarme*, hiding behind a bush or a fence, takes your number by glancing at the rear of your motor car, and you know nothing about your crime until you are summoned to court a few weeks later. Perhaps you were not in your car at all on the unfortunate occasion. Your chauffeur was driving it—taking out a party of his friends, including the cook, her aunt, and kids. That makes no difference; it's your name that, at police headquarters, is inscribed opposite 4—11—44 N. G. Hence it's you who pay, or go to jail, or do both. M. de La Fresnaye, manager of the Paris house of Rochet-Schneider, is one of the victims of this method. He was in Lyons when his car, somewhere near Paris, contracted the liability for him, and, by default, he "got three days," which he must board out sooner or later.

M. Charley, the Mercedes man, has "two days" hanging over his head, but he is contesting the matter in the courts.

The *Vélo* has become the *Journal de l'Automobile* and the manager, M. de Pawlowski, has hustled it into eight pink pages with real pictures.

Still another daily motor paper has made its appearance. It is called *Les Sports,* and is understood to be backed by the *Journal.* Victor Breyer's casting his lot with the *Auto* appears funny when one recollects his participation in the old *Vélo's* fight against the *Auto.*

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MOTOR'S INFORMATION BUREAU

There are two sections to every magazine—the editorial and the advertising. Neither is more important than the other. The reader buys a magazine for the interest which the editorial section has for him, and he expects the advertising section to be an *information bureau* of his needs.

The advertising pages of this issue of MOTOR should be as carefully read as the text pages, because they are its readers' *information bureau*. If you wish to buy a motor-car, you will find the standard makes advertised in MOTOR. If you wish tires, lamps, motor-car accessories, etc., you will find only the standard makes of anything represented in MOTOR's advertising pages.

Never hesitate to write to advertisers for more complete information than the advertisements contain. You incur no obligation, if you do. And when you do, kindly mention MOTOR.

For information about anything not in MOTOR, write us and we will see that you are informed.

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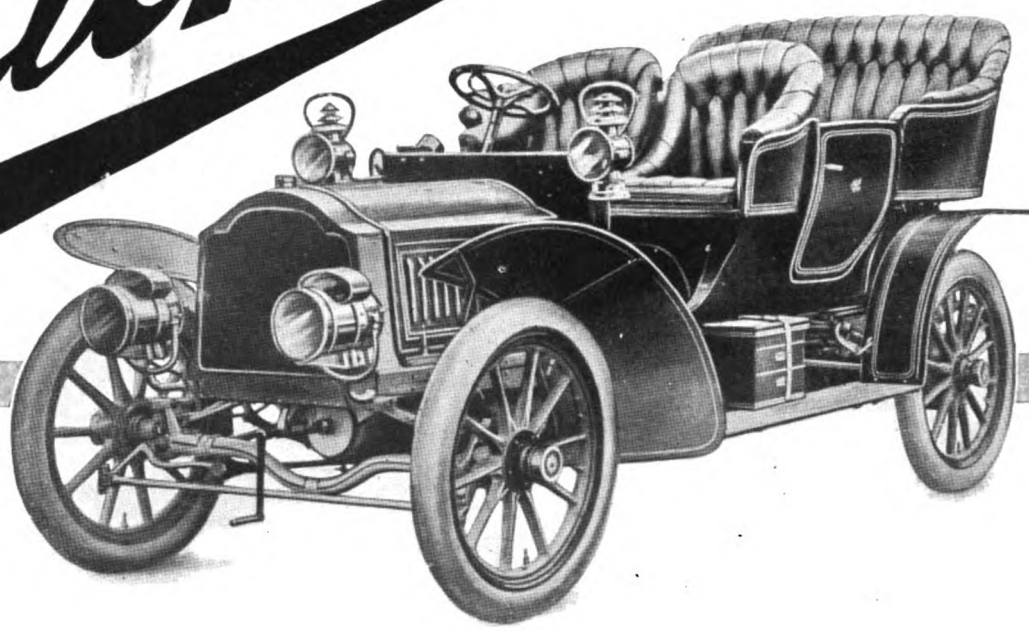
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Packard



Winner of The Grand Prize, *World's Fair, St. Louis.*

The four-cylinder Packard will run more miles without the need of adjustment and with fewer repairs than any other motor car made.

Nothing created by man has ever equaled the performance of the standard Packard car, which on August 6th to 8th ran 1,000 miles without a single motor stop, at a sustained speed of over 33½ miles an hour. Instead of needing repairs the car ran better at the finish than when the trial was started.

Since the completion of the test this particular car, without the slightest attention from the factory, has had over five thousand miles of road driving with surprising track demonstrations at Buffalo, Long Branch, Providence and Philadelphia, and proved most conclusively that not only is its design right but that the materials and methods used in its manufacture have successfully solved the motor car problem.

A finely illustrated book containing complete particulars of this test, as well as full details regarding the double side entrance Model N car (Price with standard equipment, $3,500, f. o. b. factory), will be promptly mailed on application. Write for name of nearest Packard dealer.

PACKARD MOTOR CAR CO., Book 6

Member of A. L. A. M.

New York Branch
1540 Broadway

DETROIT, MICH.

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The Perfected Dunlop Detachable Tire

Solves the problem of proper cost for tire maintenance. Made of the best rubber by the most expert workmen. No rim cutting. No creeping. No pinching of tubes. Punctures easily and quickly repaired.





It can be detached by a novice in less time than any other tire. Expand the ring by means of the turnbuckle, remove ring and slip outer cover from rim.

Simple.
Easy.
Quick.



COLT'S PAT. FIRE ARMS MF'G. CO.
HARTFORD, CONN. U.S.A.
L. C. GROVER, PRESIDENT

November 23, 1904.

The Hartford Rubber Works Co.,

Hartford, Connecticut.

Dear Sirs:-

I take pleasure in stating that the 1904 "Dunlop Detachable Tires" have been satisfactory under all conditions.

I expected some annoyance from creeping on account of the weight of my car (with seats occupied over 3,300 lbs.), but 2,100 miles have developed no trouble of this nature.

These tires are the easiest riding of any that I have used in the past five years, and possess all the merits claimed by you.

Yours very truly,

L. C. Grover

THE HARTFORD RUBBER WORKS CO.

HARTFORD, CONNECTICUT

BOSTON NEW YORK PHILADELPHIA BUFFALO CLEVELAND DETROIT
CHICAGO MINNEAPOLIS DENVER ST. LOUIS SAN FRANCISCO LOS ANGELES

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HOW TO CONTROL A MOTOR CAR IN EMERGENCIES

BY LOYD A. THOMAS.

THE Driver lost Control of his Car!"

That's part of the Newpaper report of nearly every Automobile accident.

The most important thing about an Automobile, is its method of Speed-control.

Mere Horse-power is secondary to this!

Many cheap Motors develop high speed, while they last—but they wear out in a hurry, and are unreliably controlled.

Many Automobiles are controlled by expanding Speed-Governors. These have many wearing parts. They have revolving fly-out Arms, Springs, Gears, Belts, or Shafts, with special Levers to operate them.

They work well enough, while new. But,—Wear, Rough Roads, Overheating, or poor Lubrication, may put them out of adjustment, at critical periods. Then there's another item for the Press.

The Speed-controlling system of an Automobile can't be too simple.

It can't have too few parts to get out of order. It can't be too direct, too flexible, too graduated, too Automatic, nor too Reliable.

Even a Dare-devil Driver can do more daring things with a car, when he knows he can absolutely depend on the Speed-control working at the precise moment, and to the precise degree he expects it.

This is where the "Winton of 1905" scores over all other Motor Cars.

* * *

The speed of the Winton Motor Car is controlled by *Air*-pressure.

No Gears to wear out, no Springs to weaken, no Levers to stick at critical moments. This is why Winton "Air Control" gives such absolute security.

When the Winton Motor starts running it at once compresses enough Air to cut off its own supply of Gas, in a half-minute. And a Motor must stop running when the Gas is shut off from its cylinders.

The Winton Cylinders can only receive Gas when you purposely spill some of the Air-pressure that throttles it. This Air-pressure is released (or spilled) by merely pressing your left Foot on a spring Pedal beside Steering shaft.

The more you press that Pedal the faster the Car travels.

The less you press it the slower the Car travels.

Take you foot off the Pedal and the Car stops altogether.

Isn't that simple, safe, and easy to remember in emergencies? No Valves to turn, no Gauges to watch, no Levers to move.

With this one Pedal alone, and using the high-speed clutch, you can run Four miles an hour, or Forty miles an hour, or any speed between these two. No arbitrary half-speed, quarter-speed, nor full-speed levers to consider, in regular running—of the 1905 Winton.

Your foot on the Pedal sets the Pace as perfectly as if you were walking or running.

Think of the easy control this gives you,—the freedom from risk or anxiety, and the time saved in running the Car. A youth could run a Winton the first time he rode in it with an hour's coaching.

But,—no Car except the Winton can use this Air-pressure Control. Because, it is a basic Winton-patented feature.

* * *

Then, there's the WINTON Steering Gear of 1905. Observe that it is not a Worm Gear like the others.

The thread of a Worm Gear wears down in the center long before it does on the sides of the Steering Gear. That "lost motion" makes steering mighty uncertain sometimes.

It upsets the Driver's calculation, and so may lead to serious accident, in running through crowded streets or close quarters.

If you tighten up the wear on a Worm steering gear it is then liable to wedge in the nut, on short curves.

That may land you in a Ditch.

But there's no "lost motion," nor "wedging" possible with the WINTON Steering Gear of 1905.

Because—instead of a half-round Worm Gear it has a whole-round thread on the Steering shaft.

This works in a whole-round Nut.

The thread MUST therefore wear evenly all round when Shaft is turned to left or right.

Your life may Some day depend on the accurate Control this patented Winton feature gives.

The 1905 Winton has been made the most accessible car in existence.

Nearly all WINTONS have, in the past, had Horizontal Two Cylinder Motors. These had to be placed under the forward seat, and were not so easily get-at-able. But this year it is different.

The Winton Vertical Four-Cylinder Motor is placed forward of the dash-board, and under a hood where it is instantly get-at-able.

When you lift off its Aluminum hat every working part (except the Transmission Gear), may be seen at a glance.

Pistons, Crank Shaft, and Connecting Rods may then be quickly removed, without disturbing cylinders or any other Motor parts.

* * *

The four "up and down" Cylinders are fed Gas by one Carbureter.

No changing of Mixture necessary. The Carbureter is permanently set so as to produce one standard grade of (Gasolene and Air) Mixture at all times, and all seasons. No experimenting with Mixture needed and Lots of trouble is thus avoided,—lots of adjusting saved.

The Winton Speed-control supplies more, or less, of this standard grade Mixture to the Cylinders, at will, but never tampers with its quality.

All Four Cylinders are "fired" by one single Magneto. This is positive Gear-driven, instead of chain or friction-driven.

It thus gives absolutely regular, and continuous ignition, no matter how rough the roads, nor how great the vibration from any cause.

No Dry Batteries; Multiple Vibrators, nor Storage Batteries—accumulators—needed with a 1905 WINTON.

* * *

Think of the worry, detail, "tinkering" and expense this cuts out—the Simplicity it affords.

Under the floor-board, (between front seat and dashboard) is the Winton Transmission Gear. This can be removed bodily, in [illegible] minutes' time, without getting under sides, or body, of carriage.

The Dust-pan beneath the 1905 WINTON is permanently [illegible]. Because, there is no longer any need to look under the floor of car—all working parts are reached readily from above.

No other Vertical Motor Car is half so Accessible.

* * *

Now, Note the new Twin-Springs.

Two single-Springs, the upper one for light loads and good roads. These give a motion easy almost as that of a Pullman Car. The lower Spring re-inforces the upper, for heavy loads. It prevents pounding of Car body and Motor, when running over rough roads, crossing Railway tracks, or "thank-ye-mums."

The Twin-springs are shackled together but do not touch, except when bouncing hard at high speed.

The Twin-springs double the comfort of riding. They add 30 % to the life of the Motor, in protecting it from jar and vibration.

They take nearly half the work off the Tires and permit greater speed over rough roads.

These Twin-springs can be had on no other Motor-Car but the 1905 WINTON.

* * *

Another feature is the Automatic Oiler.

This feeds Oil, to every friction-spot, in exact proportion to the speed Motor is running at. Impossible to siphon, or flood the Motor.

The Cylinders of the 1905 Wintons are cooled by rapid circulation of non-freezing Fluid (Polar Compound) through a fin Radiator.

Behind the Radiator is a gear-driven Fan, and on the fly-wheel is cast another. These two Fans pull the air around the pipes and fins of the Radiator so fast that the fluid is rapidly cooled.

The 1905 WINTON, therefore, has the advantage of both "Water-cooled" and "Air-cooled" systems successfully combined.

Winton Style is proverbial. But, the 1905 model is the most graceful yet produced. People call it "the Winton greyhound." Because it has such long, racy lines.

Picture below shows the $1,800 model.

It has the same Power as last year's $2,500 Winton. But it weighs 800 pounds less, so that it should have more speed per Horse-power.

The $2,500 WINTON of 1905 has a 24-30 Horse-power Motor.

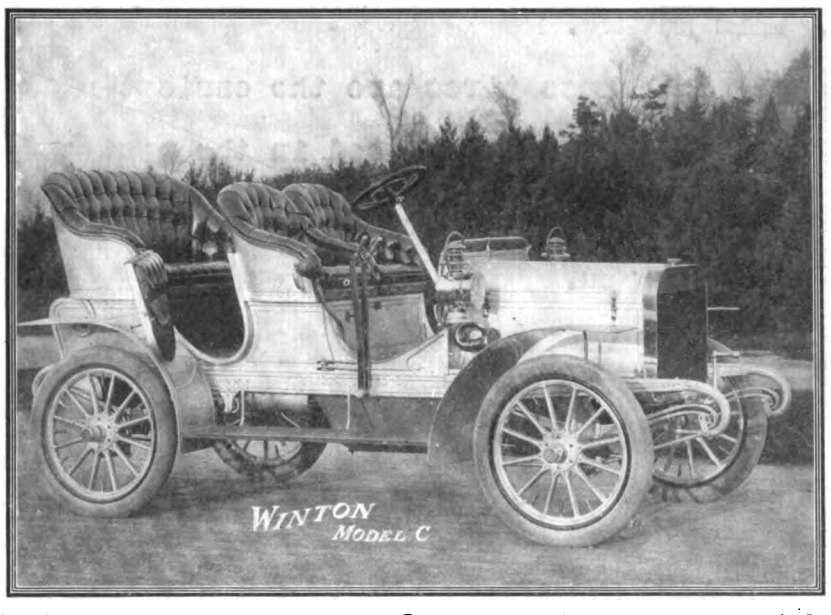
Length, 150 inches: Wheel-base, 106 inches.

The $3,500 WINTON of 1905 has a 40-50 Horse-power Motor.

Length, 15 inches: Wheel-base, 106 inches.

The $4,500 WINTON of 1905 is a Special Limousine.

Write for Catalogue No. 6. Address The Winton Motor Carriage Company, Cleveland, America.



The WINTON of 1905

Vertical, Four-Cylinder Motor

16-20 Horse Power...$1,800
24-30 Horse Power...$2,500
40-50 Horse Power...$3,500
40-50 H. P. Special...$4,500

THE CAREY PRESS, NEW YORK.

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vj. 3 M05
Sports Dog Library
TL
M92
v. 3
no.5

MOTOR

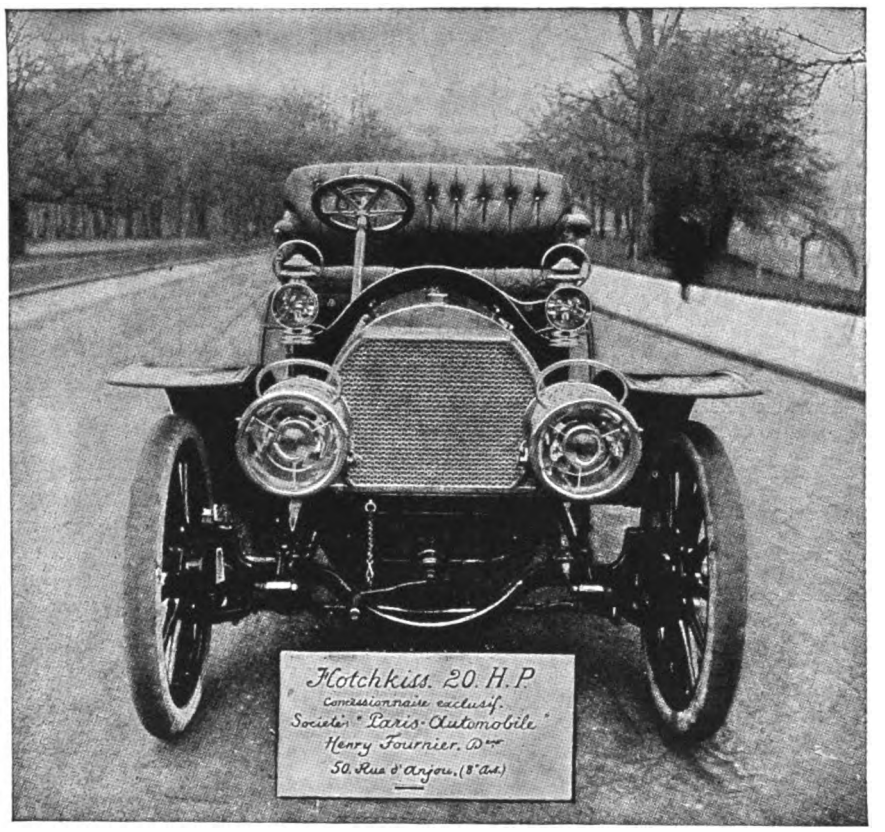


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If You Go
Touring in Europe
Don't Fail to Call On
MR. HENRY FOURNIER



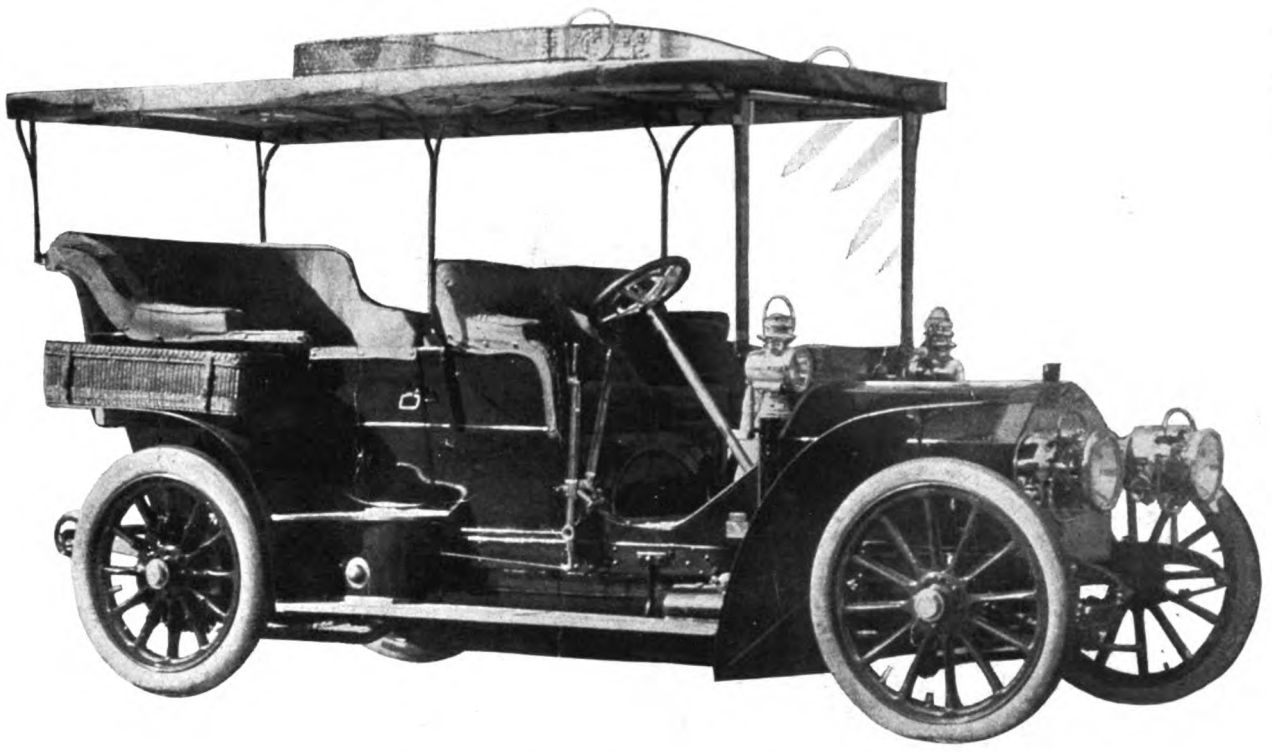
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MANAGER OF THE
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And Ask Him to Give You a Ride On a
HOTCHKISS

Built Like A Gun
By Gunmakers

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The undenied supremacy of

Mercedes, Panhard, Renault and S & M Simplex Automobiles

has been fairly earned. They simply are better made, speedier and surer than other cars. Always ready to go and just as ready to come back. The new bodies with long wheel base and side entrances provide luxurious comfort. Enclosed for bad weather.

Foreign cars purchased of us are imported at our risk; those purchased direct abroad are imported at the buyer's risk. In either case the final cost is the same. Or, we sell here for delivery in Paris, at the same figure the individual purchaser can buy for there. A single transaction with a responsible house here saves the buyer all delay, danger and annoyance.

S & M Simplex motors for pleasure and auxiliary launches are powerful, compact, clean and safe.

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NEW YORK, N. Y.

MEMBERS
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From two to forty miles an hour

Automobiles Charron Girardot & Voigt

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Smartest Car in the World. For Town or Touring

Demonstration will be given by Appointment

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1904
St. Louis
Exposition
—
Grand Prix

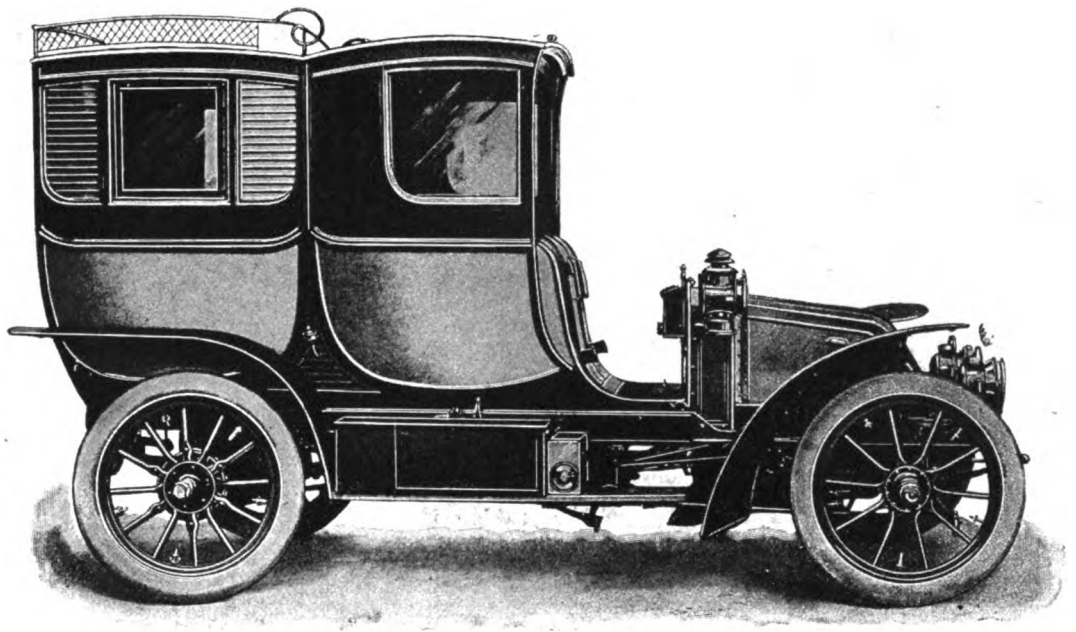
Automobiles

RENAULT FRÈRES

Brillancourt (Seine), France

1904
Vienna
Exposition
—
Grand Prix

800
workmen



Factory
with
25,000
sq. yds.
of floor
space

PARIS-BERLIN: 1st Prize

All the light Autos beaten by the Renault Voiturette

PARIS-VIENNA: 1st Prize

First in the General Classification

PARIS-MADRID: 1st Prize

First among the light Autos

1904
Nantes
Grand Prix
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1904

Automobiles for city use
Automobiles for extensive touring
Automobile delivery wagons
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Motors for boats, or for industrial purposes
from 7 to 60 horse power

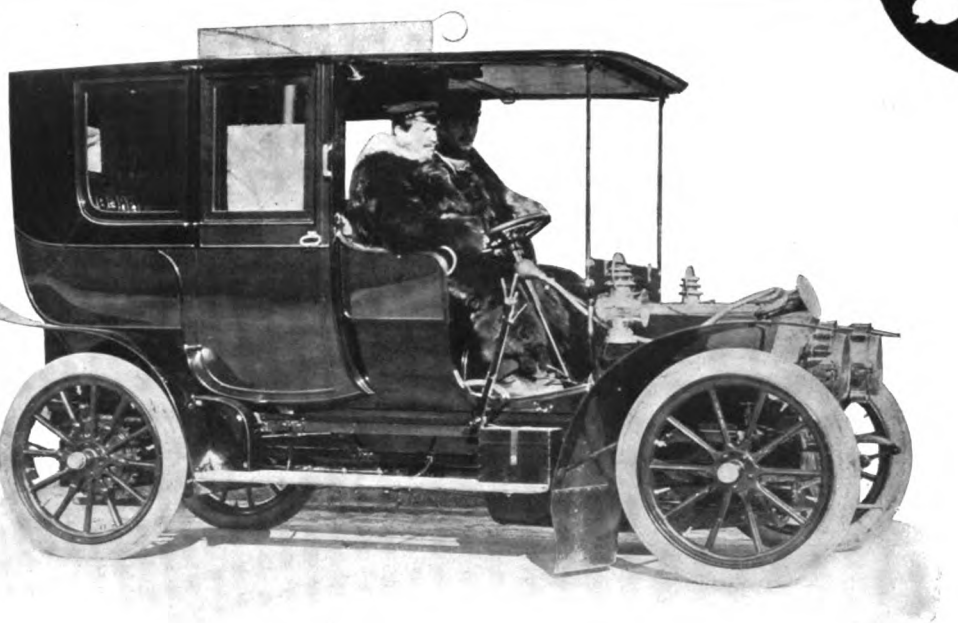
1904
Lyons
Exposition
—
Grand Prix

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MOTOR CARS

MADE IN BELGIUM



15-20 H. P. PIPE LIMOUSINE

The Least Expensive Imported Motor Car Made

PIPE CARS are made in 16 h. p., 24 h. p., 40 h. p., 80 h. p., in all styles of bodies.

PIPE CARS are famed throughout Europe for simplicity and strength of construction.

The **PIPE LIMOUSINE** is the most luxurious motor car in the world.

For Particulars, Address

J. S. HELLER

Sole Agent for North America, Central America, and West Indies

123 West 52nd Street, New York City

P

MOTOR

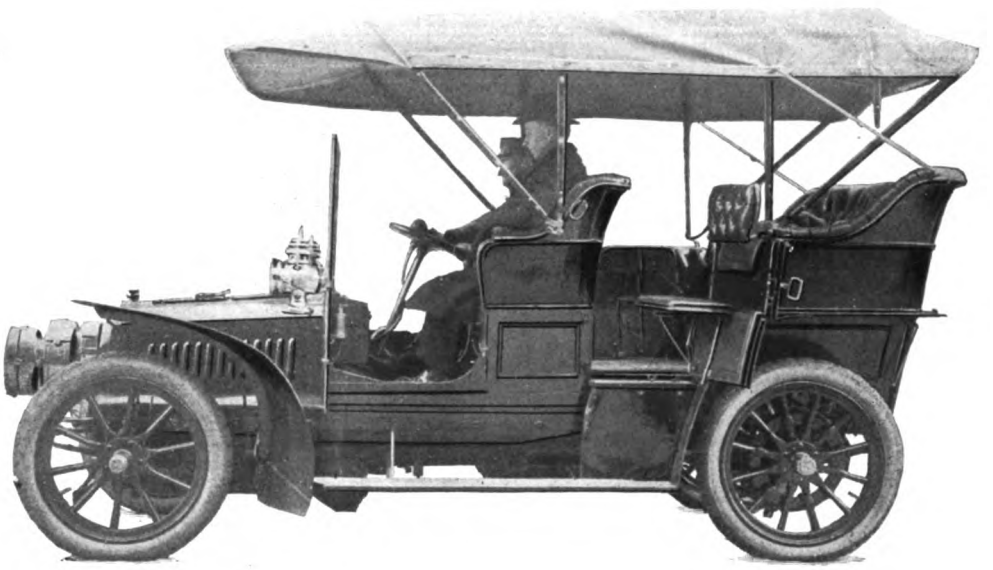
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PANHARD & LEVASSOR

19 AVENUE D'IVRY, PARIS,

American Branch 230 West 13th st. New York City.

TELEPHONE 316-317 CHELSEA.



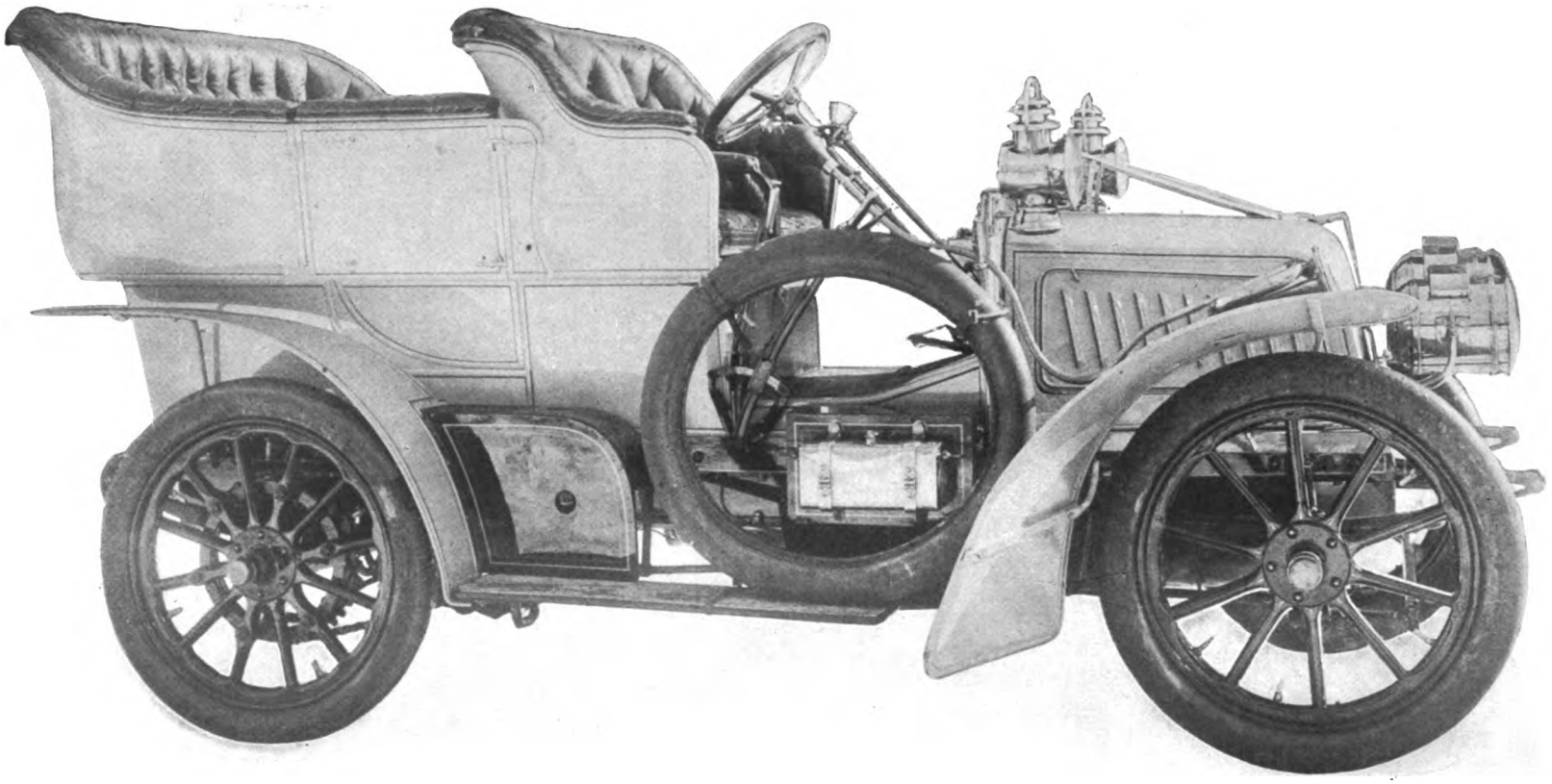
MOTOR.

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WORTHINGTON AUTOMOBILE CO.

Fifth Avenue and 45th Street

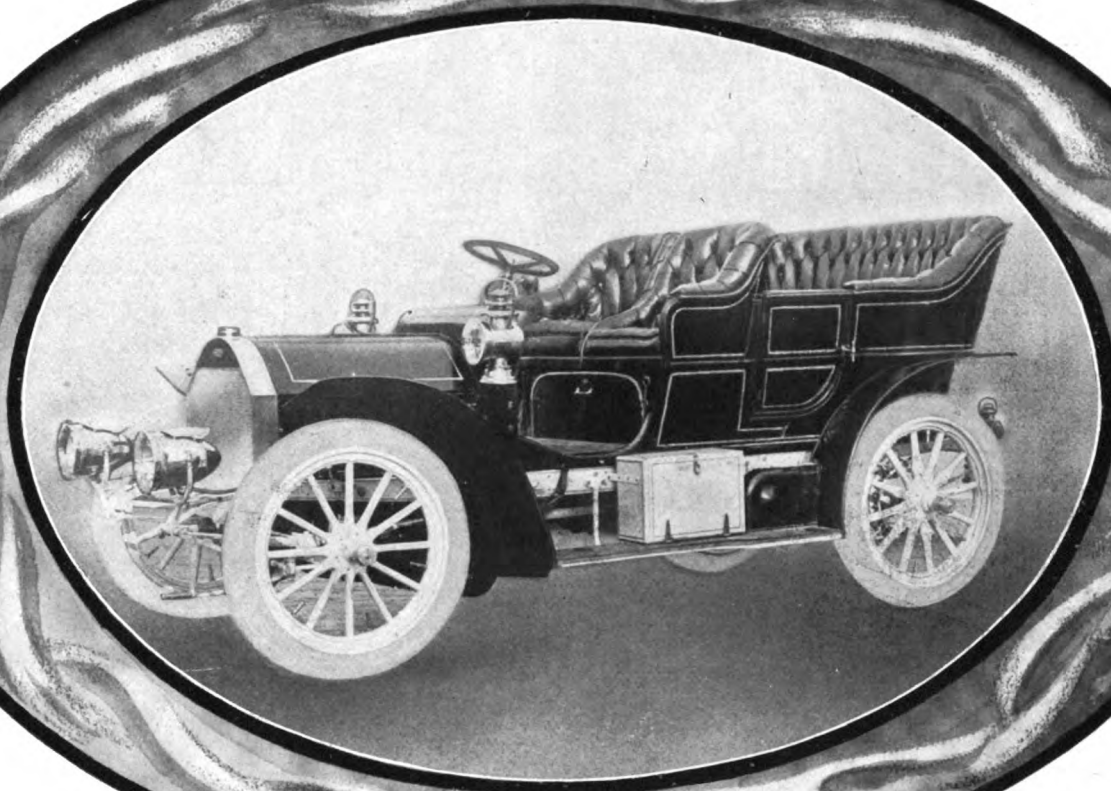
NEW YORK



24 H.P. Berg Touring Car

MEMBERS ASSOCIATION OF LICENSED AUTOMOBILE MANUFACTURERS

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8 Reasons

why the

Locomobile

Is Easily the Best Built Car in America

1.—Standard design. No freak features.
2.—Result of experience on proper lines.
3.—Special material for each part.
4.—All material analyzed and tested.
5.—Forgings used instead of castings.
6.—Every part made interchangeable.
7.—Careful attention given to minute details.
8.—Convenience of the customer considered at every point.

See our large exhibit at the Automobile Show, Madison Sq. Garden, Jan. 14th-21st.

1905 MODELS—15-20 h.p., $2,800; 20-25 h.p., $3,700; 30-35 h.p., $5,000; 40-45 h.p., $7,500

Locomobile Co., 76th St. & B'way

Member A. L. A. M.

P MOTOR

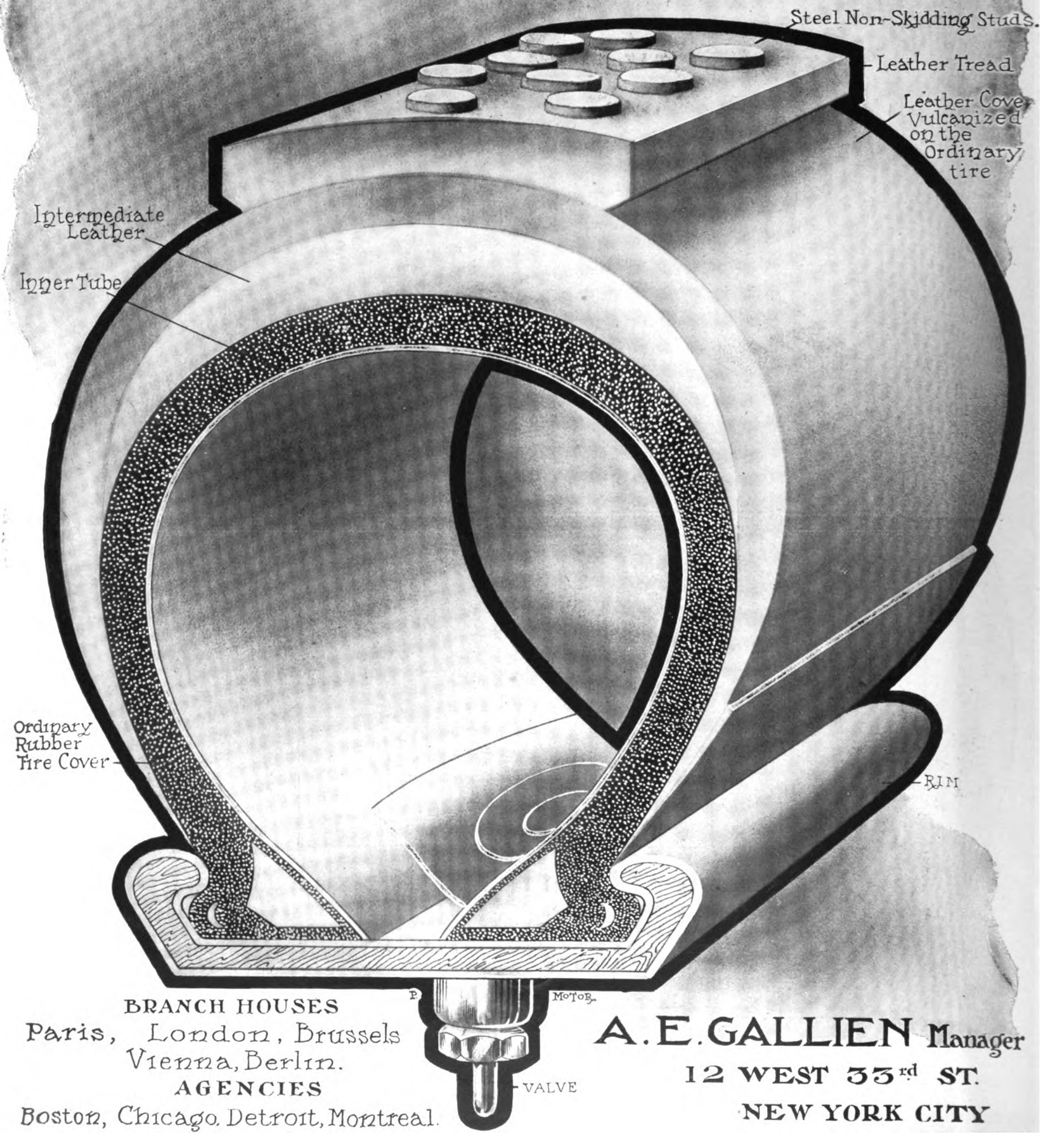
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THE SAMSON

LEATHER TIRE

NON-SKIDDING NON-PUNCTURABLE



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AGENCIES
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NEW YORK CITY

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Thread Fabric
G & J TIRES

Most Durable
Fastest
Safest

The thread fabric construction removes a internal friction from the fabric, so that the tires do not heat up under the longest drives at the highest speed. That is why G & J thread fabric tires are the most serviceable automobile tires in the world.



G & J TIRE CO.

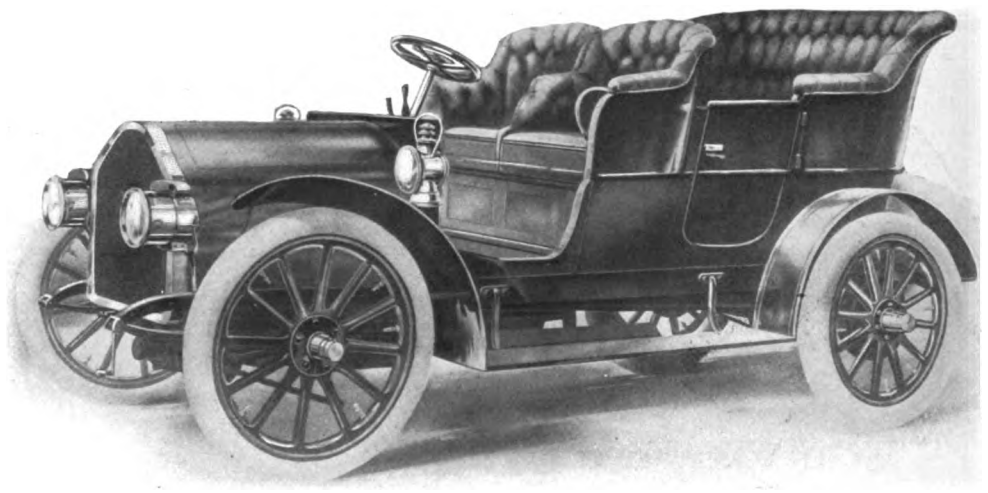
Factory:
INDIANAPOLIS, IND.

Branches:
Chicago, Ill. **Detroit, Mich.**

Rims branded in the channel with these copyrighted marks have been inspected and pronounced perfect. We guarantee our tires on all rims so branded.

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This advertisement is utterly selfish. Its purpose is to put the remarkable features of the 1905 Orients so clearly before you that it will help us to sell more cars.



Orient de Luxe Touring Car, 20 horsepower. Price $2,250

We have four things to lay stress on, any one of which is sufficient to make the Orient the best selling line of the year.

FIRST: The Orient motors will be positive air cooled, by means of a powerful, four-bladed fan sending its air-blast completely around the four vertical cylinders, which are arranged in tandem.

SECOND: Our new mechanical valve makes the Orient motor run absolutely without noise.

THIRD: The 1905 Orient will have more power for weight than any other machine in the world.

FOURTH: In design and coloring these cars will fully equal the highest-priced French cars—and beauty counts, too.

Eight Orients will make up the complete line as follows:

Touring Runabout, Model E, 16 H. P.....$1,500	**Buckboard, Model A, 4 H. P.....$375**
Light Touring Car with Tonneau, Model F, 16 H. P..... 1,650	**Surrey, Model B, 4 H. P..... 450**
Touring Car, Model G, 20 H. P..... 2,000	**Runabout, Model C, 4 H. P..... 475**
Touring Car, Model de Luxe, 20 H. P..... 2,250	**Tonneau, Model D, 4 H. P..... 525**

SPECIFICATIONS.

20 H. P. ORIENT, Model de Luxe, Price, $2,250

Body: Tonneau double side entrance.
Seating Capacity: Five persons.
Frame: Pressed steel, tapering pattern.
Springs: 40-inch front; 45-inch rear.
Color: Body and hood olive green; gear red; black striping.
Hood: Mercedes type; aluminum front; removable.
Total Weight: 1,650 pounds.
Wheel Base: 96 inches.
Wheel Gauge: Standard, 56 inches.
Wheel Diameter: 32 inches.
Axles: 1¼-inch diameter; toughened steel.
Tires: 3½-inch International G. & J. pattern.
Steering: Brass-plated steel upright; wood rim wheel.
Brakes: Band and emergency.
Gasoline Capacity: 10 gallons.
Motor: 4-cylinder, vertical, tandem; positive air-cooled.
Cylinders: 4-inch bore; 4¼-inch stroke.
Crank shaft: 4-throw; 1¼ inches in diameter; 5 extra long bearings.
Cooling: Powerful 4-bladed, ball-bearing fan.
Fly Wheel: 16 inches in diameter; weight 60 pounds.
Clutch: Cone pattern; internal grip.
Ignition: Two 4-cell batteries.
Transmission: Sliding gear pattern in aluminum case; ball-bearing.
Speeds: 3 forward and reverse (one lever).
Commutator: Latest French pattern.
Vibrator: 4-coil.

16 H. P. ORIENT, Model, F, Price, $1,650

Body: Tonneau; entrance, swinging front seat.
Seating Capacity: Five persons.
Frame: Pressed steel, tapering pattern.
Springs: 34-inch front; 42-inch rear.
Color: Same as 20 H. P. cars.
Hood: Mercedes type; aluminum front; removable.
Total Weight: 1,450 pounds.
Wheel Base: 82 inches.
Wheel Gauge: Standard, 56 inches.
Wheel Diameter: 30 inches.
Axles: 1⅛-inch diameter; toughened steel.
Tires: 3½-inch International G. & J. pattern.
Steering: Brass-plated steel upright; wood rim wheel.
Brakes: Band and emergency.
Gasoline Capacity: 7 gallons.
Motor: 4-cylinder, vertical, tandem; positive air-cooled.
Cylinders: 3¼-inch bore; 4¼-inch stroke.
Crank Shaft: 4-throw; 1⅛-inch diameter; 5 extra long bearings.
Cooling: Powerful, 4-bladed, ball-bearing fan.
Fly Wheel: 16 inches in diameter; weight 60 pounds.
Clutch: Cone pattern; internal grip.
Ignition: Two 4-cell batteries.
Transmission: Sliding gear pattern; ball-bearing.
Speeds: 3 forward and reverse (one lever).
Commutator: latest French pattern.
Vibrator: 4-coil.

Waltham Manufacturing Company

Sales Office for New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia and Florida.

44 BROAD STREET ::: NEW YORK CITY

Factory and General Sales Offices

WALTHAM, MASS.

REMEMBER! We are going to push the Orient line in 1905 as no line was ever pushed before.

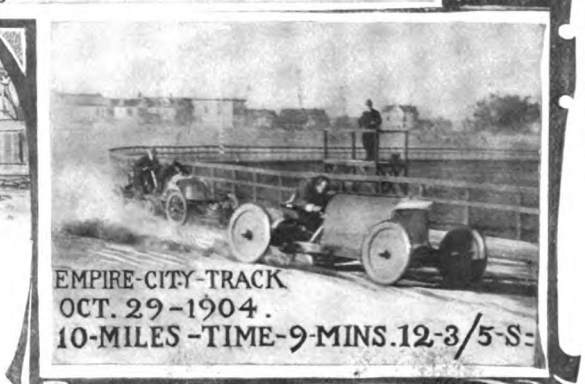
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Peerless

WORLD'S RECORDS







WORLD'S TRACK RECORDS

Made in 1904 by
Barney Oldfield in

THE PEERLESS GREEN DRAGON

MILES.	TIMES
1	53
5	4:29
10	9:12 3/5
15	14:03 3/5
20	18:45 2/5
25	23:38 3/5
50	48:40 1/5

THE PEERLESS CAR

also holds all intermediate miles.

1905 MOTORS

ARE OF THE SAME TYPE AS USED IN PEERLESS "GREEN DRAGON"

These wonderful motors are governed and controlled so perfectly that they run smoothly, silently and at will, as slowly as an electric, yet there is record-making power and speed always in reserve.

Catalogue of new models sent on request.

PEERLESS MOTOR CAR COMPANY

CLEVELAND, OHIO

Member A. L. A. M.

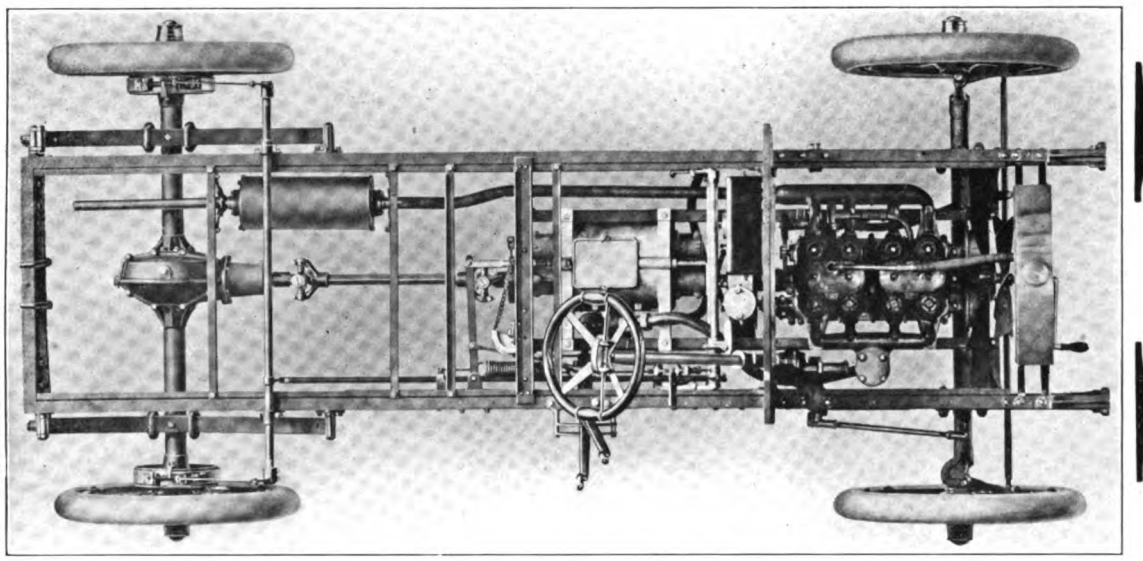


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The Autocar

THE CAR OF SIMPLICITY

CHASSIS OF TYPE XI



The Autocar stands as a triumph in automobile building. Its construction combines with greatest efficiency and durability a simplicity that is the wonder of all who see it. This is a feature that commends itself alike to the novice and the expert. It means minimum liability of derangement, greatest ease and safety of operation, and lowest running expense. Each type of Autocar represents the nearest to perfection in its class. Every Autocar is built upon lines proven correct by experience; built of absolutely the best material, and with the best workmanship procurable.

Autocar records of actual performance bear out the claim that for good day-in-and-day-out, up-hill-and-down service, for durability and freedom from annoyance, the Autocar is unsurpassed.

The new car, Type XI, illustrated with its chassis, shows a number of very valuable improvements, accomplishing increased ease of control, safety, and simplicity.

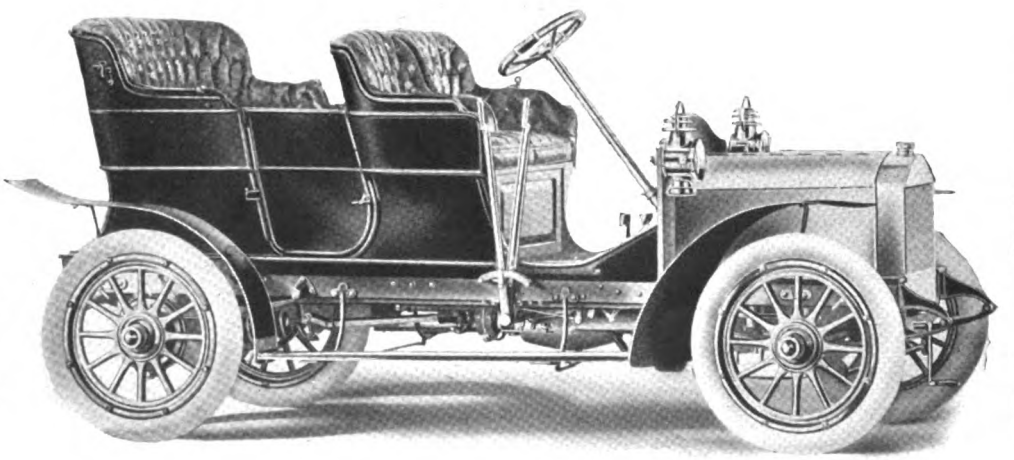
Type VIII, Four-Passenger car, Rear Entrance Tonneau, $1,400, and Type X, Ten H. P. Runabout, $900, are the cars which have made the present reputation of the Autocar—to which the new Type XI will surely add.

Write for catalogue and dealer's name.

THE AUTOCAR COMPANY, Ardmore, Pa.

Member A. L. A. M.

Type XI Four Cylinder 16-20 Hp.



Double Side Entrance Tonneau $2,000

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GOODRICH RECORDS PROVE GOODRICH GOODNESS

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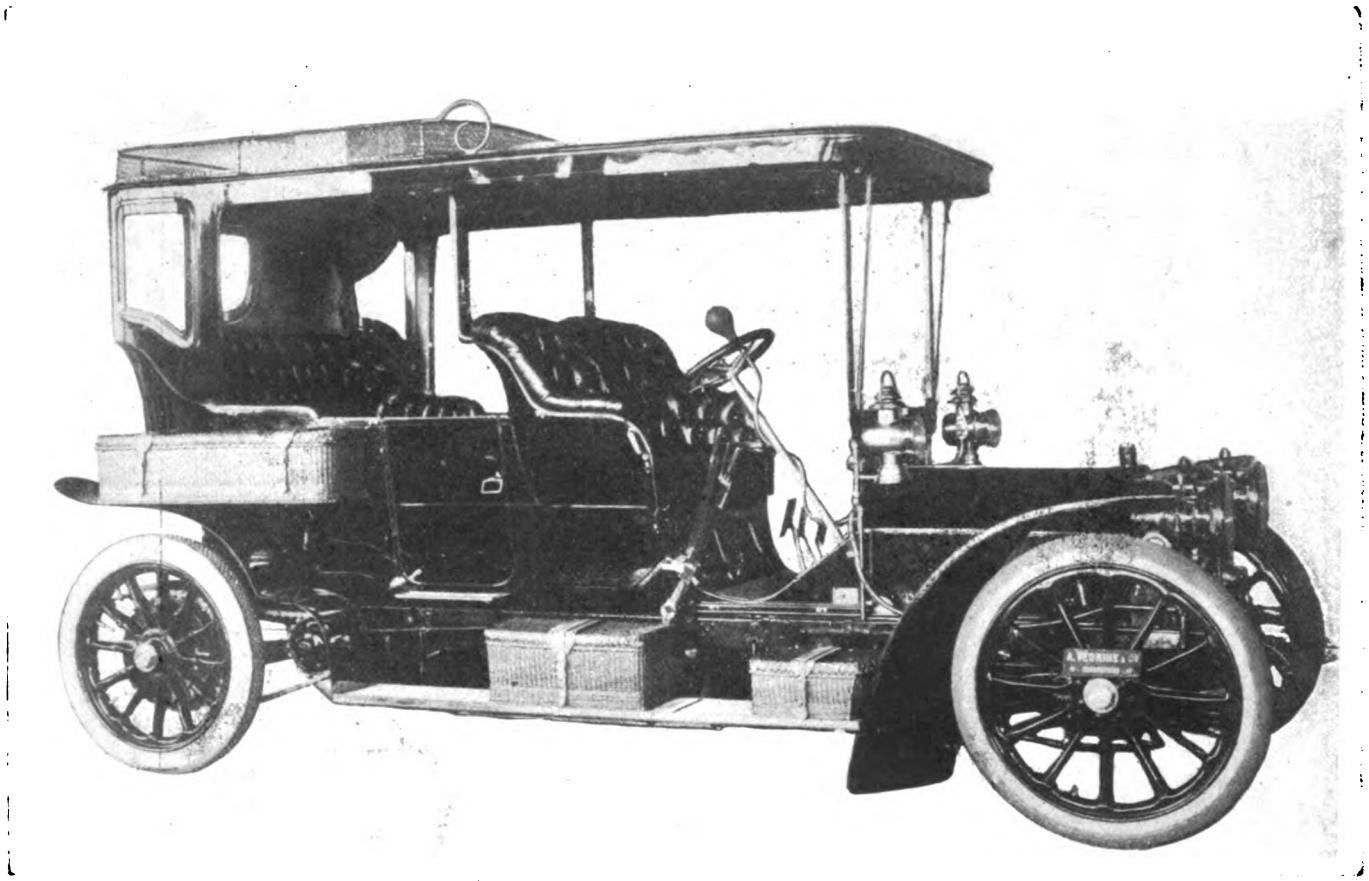
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MERCÉDÈS

Daimler Motoren Gesellschaft, Germany

The "Aristocratic" Motor Car of the World

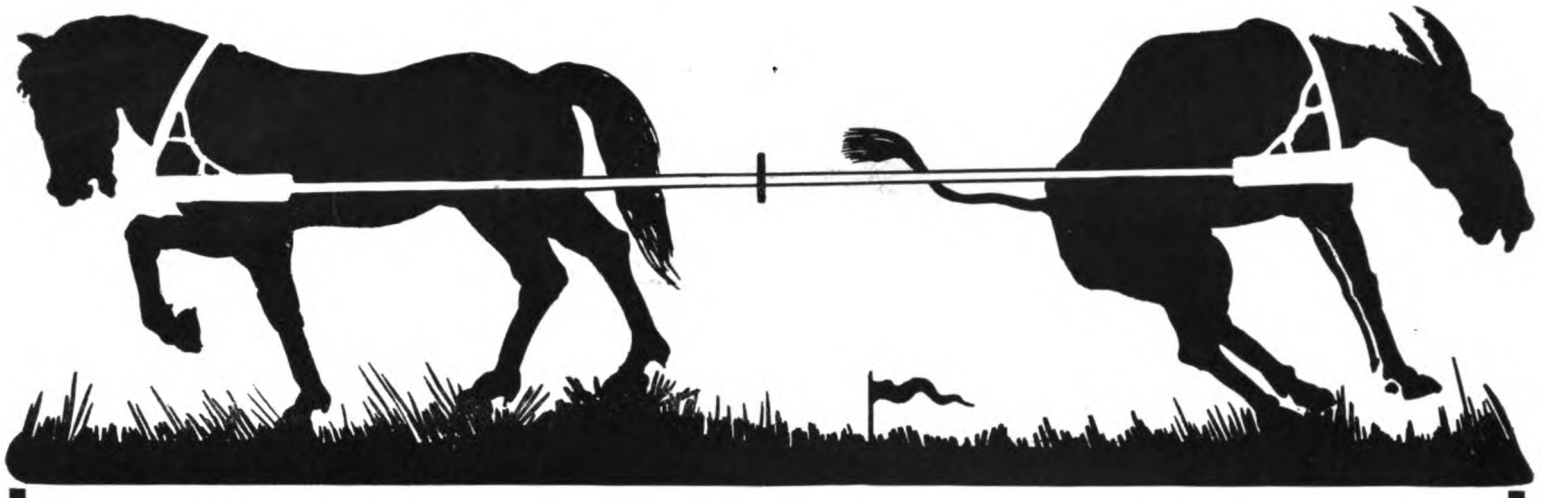
Sole Representatives for C. L. CHARLEY, Paris



Orders Can Now be Booked for 1905 Models

Every Mercedes car imported must bear license plate, to be secured only through us. Otherwise owners will be promptly prosecuted.

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HORSE-POWER
VERSUS
JACK-ASS-POWER

When a car is rated at so many horse-power, it generally means that the engine can convert gasoline into so much horse-power, but how much power does it deliver to the rear wheels ?

The most economical engine in the world is a high type of Corliss engine—an immense affair, that runs as sensitively and noiselessly as a watch; and yet this engine, magnificently balanced as it is, does not deliver all of its horse-power. Some it must waste.

Some motor cars, though highly rated, have jack-ass-power, not horse-power. They waste their strength in kicks and brays and balks. Speaking in mechanical terms, their power is not efficiently applied.

Worse than this, the strength, instead of sending the car ahead, is used up in friction and wear.

The secret of *Franklin* success is not only high power and light weight with great strength, but also power efficiently applied.

This is why, in 1904, the *Franklin* Light Tonneau at 10 horse-power did what many a car rated at 16 to 20 could not do; and this is why the *Franklin* cars are going to maintain their splendid position this coming season.

Send for "Coast to Coast" Booklet, story of the Franklin's record from San Francisco to New York

Send for 1905 Catalogue

H. H. Franklin Mfg. Co., Syracuse, N. Y.

Member Association Licensed Automobile Manufacturers.

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The Man R. E. Olds

You know him, the foremost designer of gasoline motor cars in the United States. He has built motors for twenty years and built them right. Any car that he makes is sure to be successful with the greatest possible use of every bit of power the gasoline can give.

He is not satisfied with simply an "idea." Every detail is worked out to the fullest possible perfection. He doesn't spend your money in learning how. He knows what he is going to do before he does it.

Above all, he knows what kind of a car to build for American Roads; and he knows what the American people want. His first car was a success. His latest car,

the REO, is a Wonder.

Everybody who has seen the Reo says it is a beauty,—stylish and luxurious. The picture (from an amateur photograph) gives a fair idea of how it looks from the side, but you must look it all over and all through to realize the perfection of detail which makes its wonderful effectiveness. You should see.

Its **powerful engine,** simple and compact. Giving 16 horse-power for the 1450 pounds weight of the entire car—The greatest power for its weight of any motor car made and with the least possible loss.

Freeze-proof and jar-proof radiator made of removable sections for making repairs without laying up the car.

Its **convenient gasoline and water tanks and batteries** under the hood.
Its **entire self-enclosed mechanism.**
Its **one-piece cylinder** without jackets.
Its **valve mechanism** at the top of the motor, with every valve mechanically operated.
Its **original and effective carbureter** insuring a perfect mixture under all conditions.

Its **sensitive spark and throttle control.**
Direct transmission with ample clutch surface.
Practical steering gear and brakes.

Full elliptical springs in rear.

The body, seats, guards, steps, every detail of design, construction and finish, are a splendid example of convenient and luxurious carriage-making.

The Reo Touring Car is the car people want at the price they are willing to pay.

It is handsome, roomy, powerful, simple and easy to control. No amount of money could make the working parts of the car better in any essential detail.

$1250 f. o. b. Factory.

The REO Runabout

is a single cylinder 8 H. P. car and weighs 850 pounds. The same attention has been paid to every detail as has made the Reo Touring Car a success.

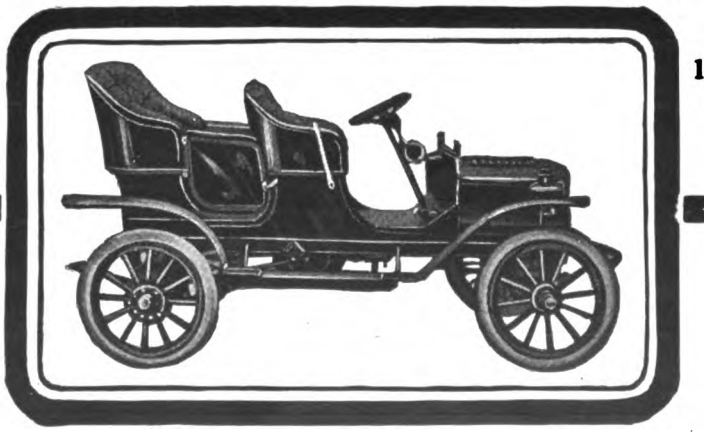
$650 f. o. b. Factory

REO Motor Car Co.

R. M. Owen, Sales Manager.

AGENCIES THROUGHOUT THE UNITED STATES

Factory:
Lansing, Mich.



Sales Offices:
138 West 38th St., New York

The Car

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HAYNES

Cars Are Most Acceptable

They're the product of the oldest Gasoline Car makers in America, whose knowledge and experience is of value to the buyer, and the records—20 of them—won by HAYNES cars, is evidence of their superiority.

Honesty is the Haynes Motto

Important improvements are features of the 1905 HAYNES. Noiselessness has actually been achieved—write for catalog explaining how this is accomplished—how this car will be acceptable to you.

PRICES

Model K $3,000.

35-40-H.P. 4 cylinder (vertical in front). Almost noiseless Engine, has a new and decidedly effective silent Roller Gear Shaft Drive. 108" Wheel Base, 34" wheels, 4½" tires. Double Side Entrance Tonneau. Victoria or Folding Extension Top, $200 extra.

Model M $1,500.

16-18-H.P. 2 cylinder (opposed). Four passenger convertible, double side entrance Light Tonneau, shaft driven direct on high speed. Adjustable Roller Bearing Engine (the only one of its kind in the world) fitted with mechanically operated inlet valves, runs as quietly as an Electric. 81" Wheel Base, 32" wheels, 3½" tires.

Model L $1,350.

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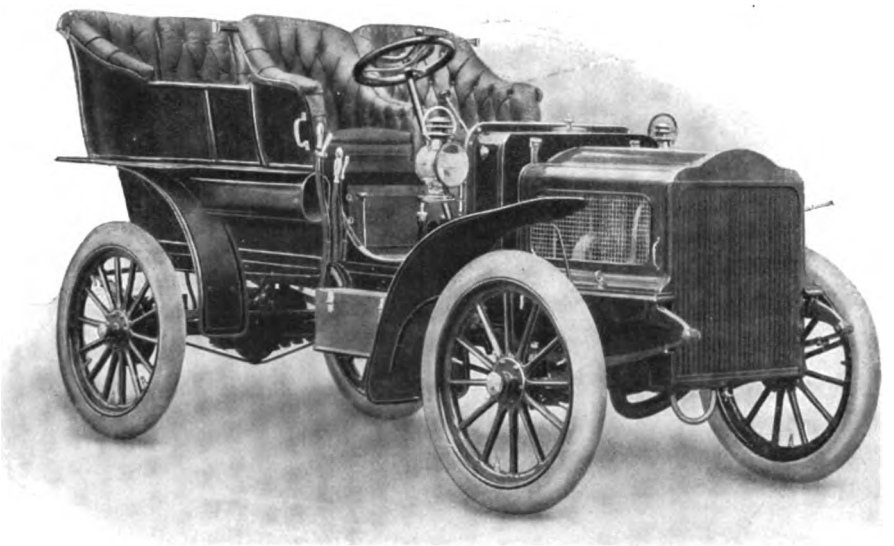
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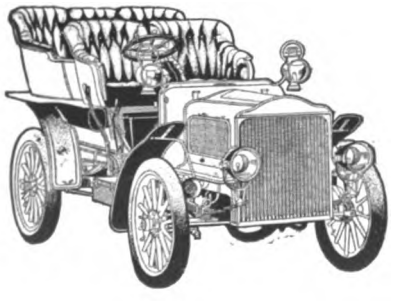
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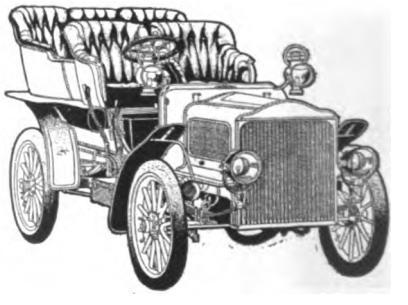
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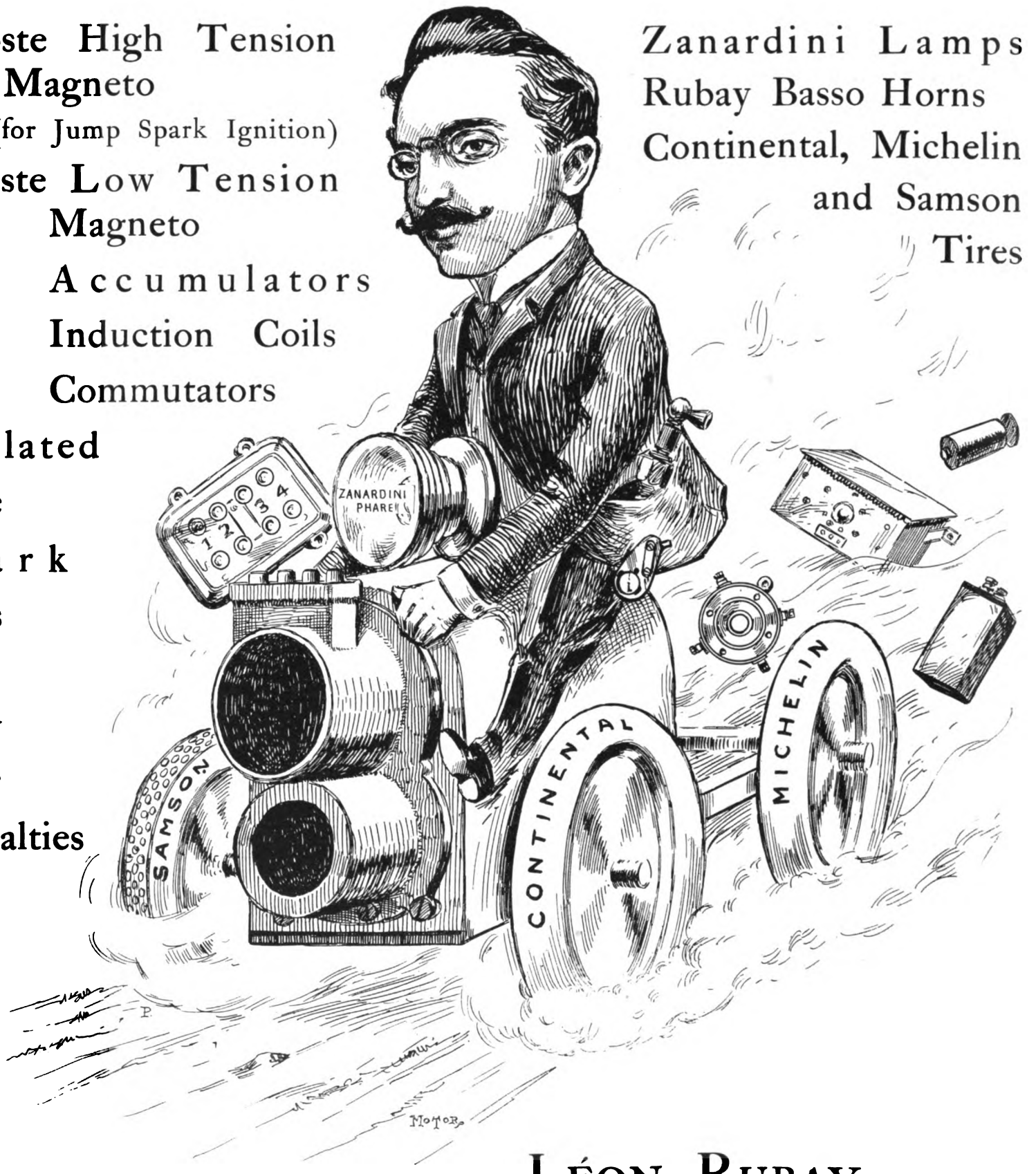
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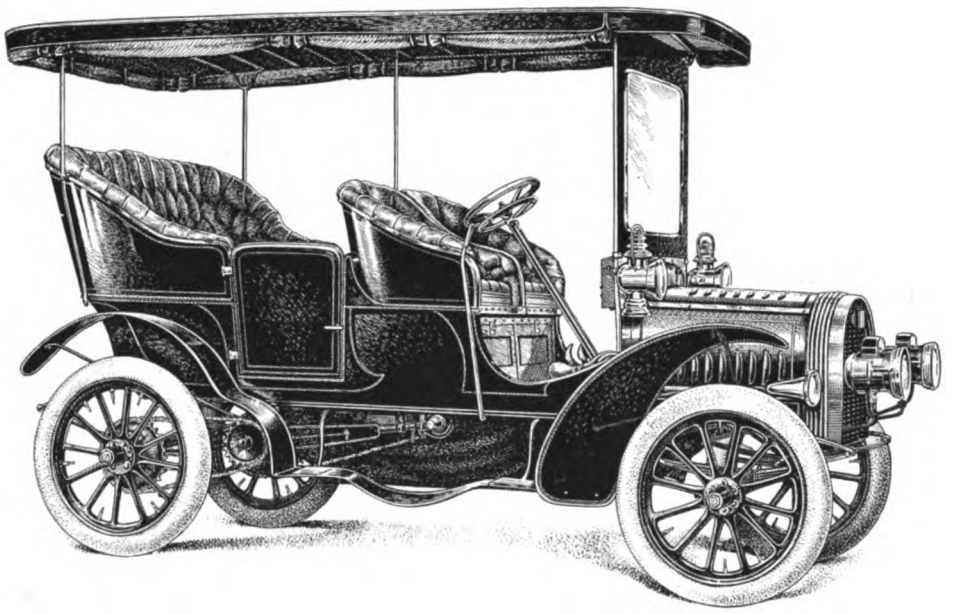
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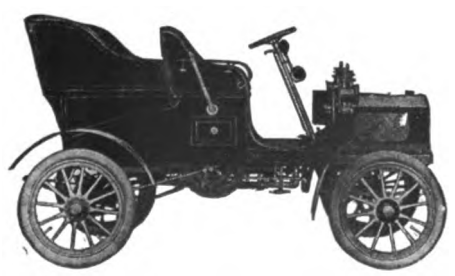
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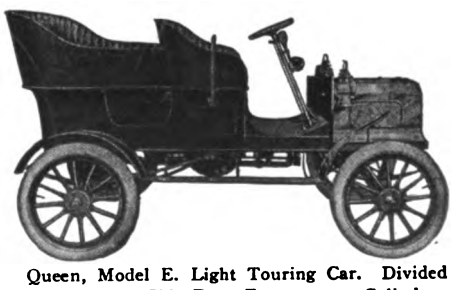
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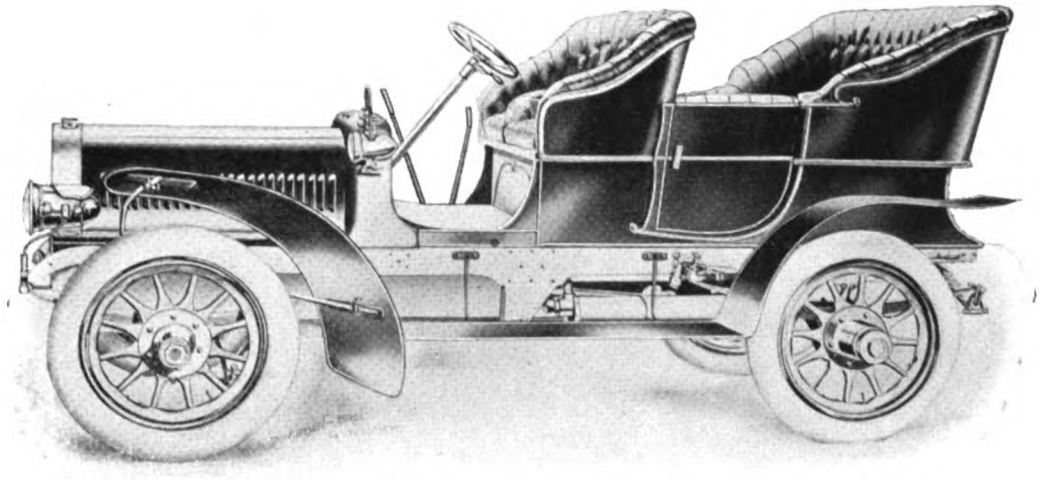
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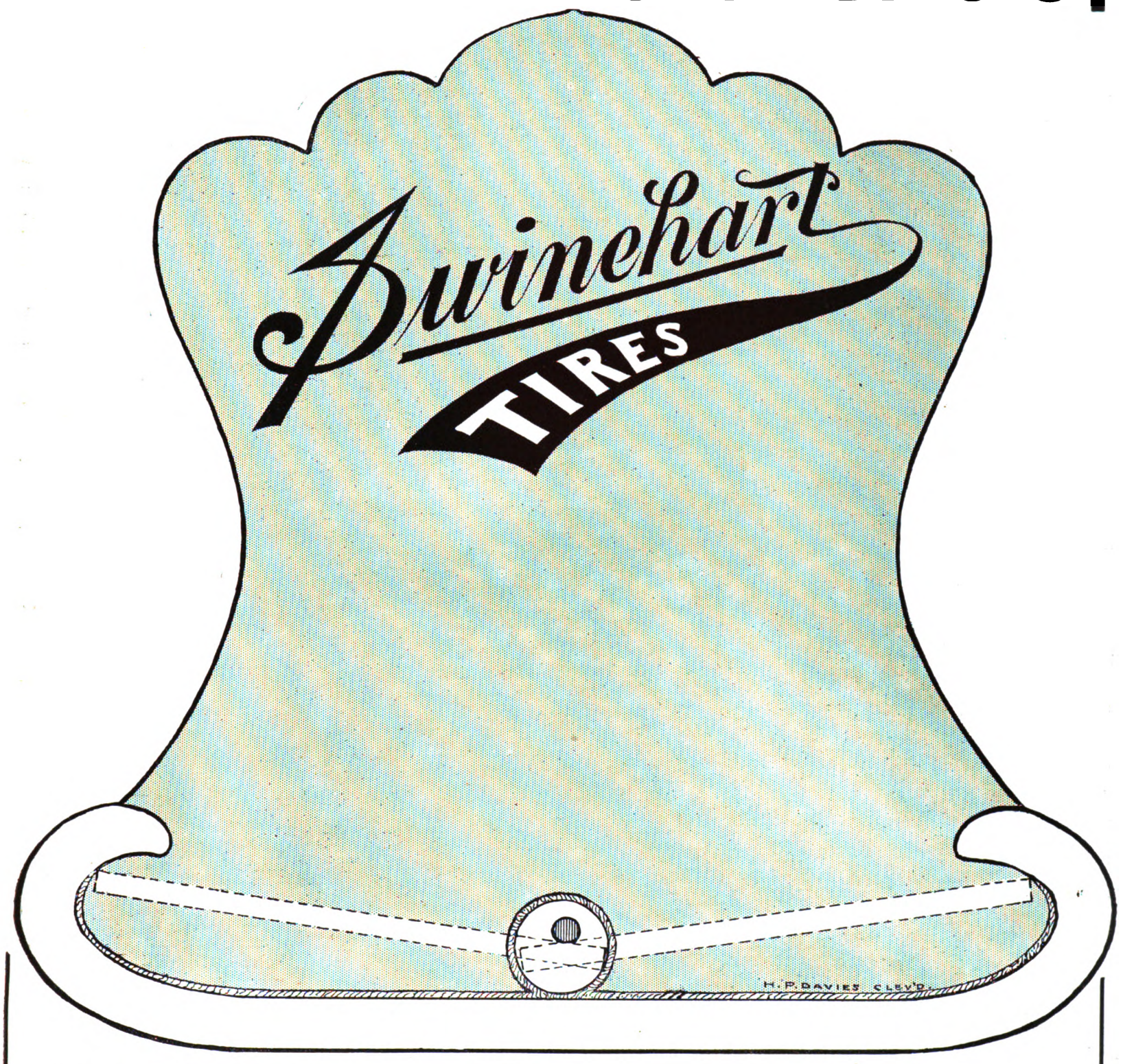
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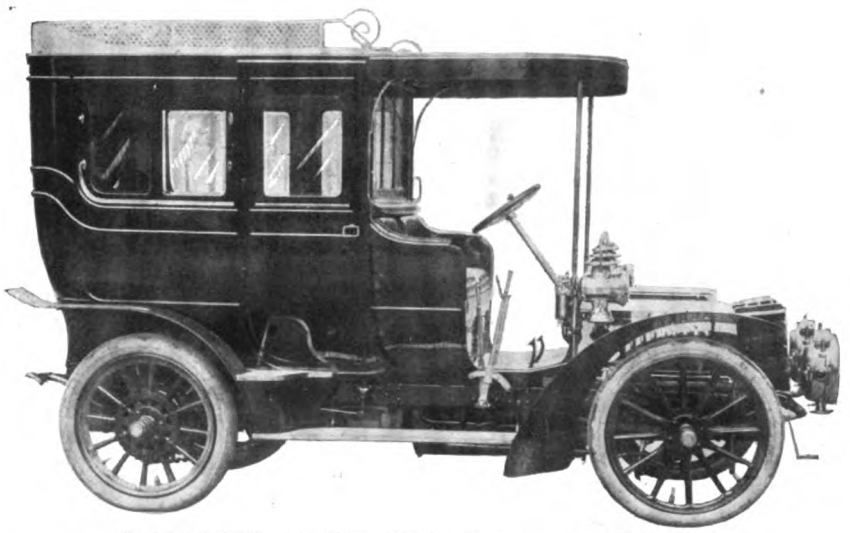
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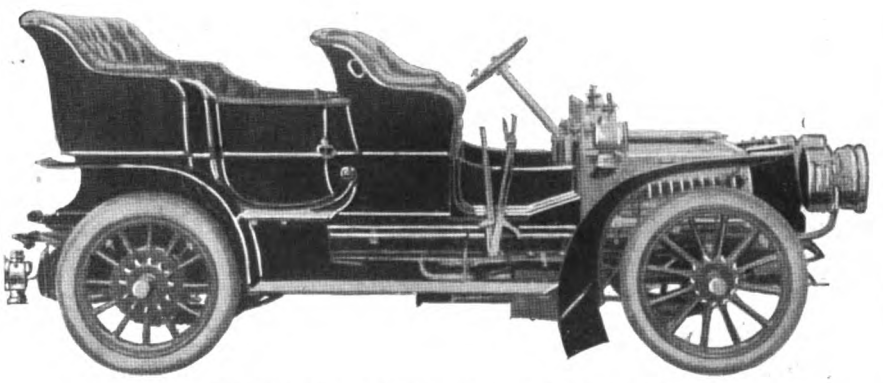
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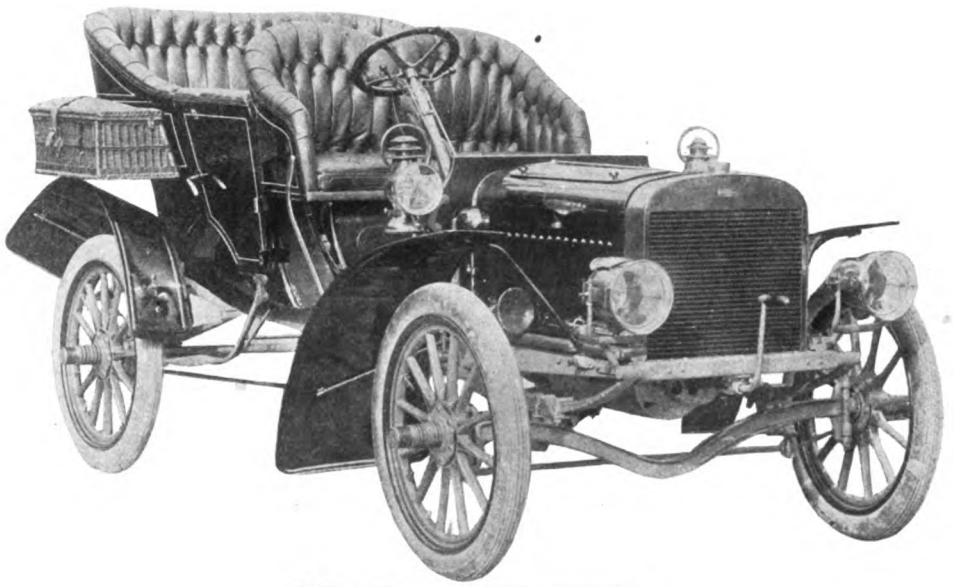
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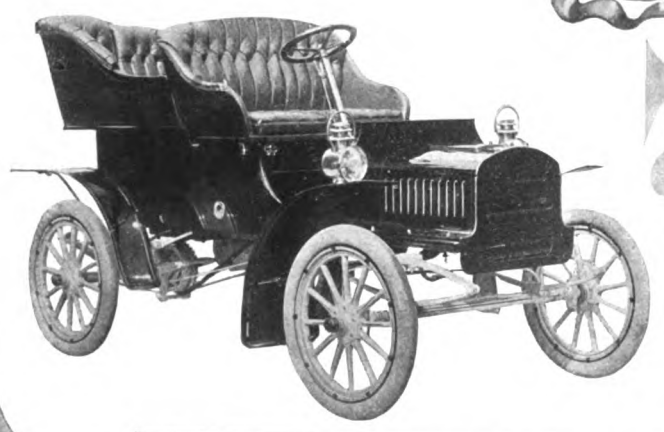
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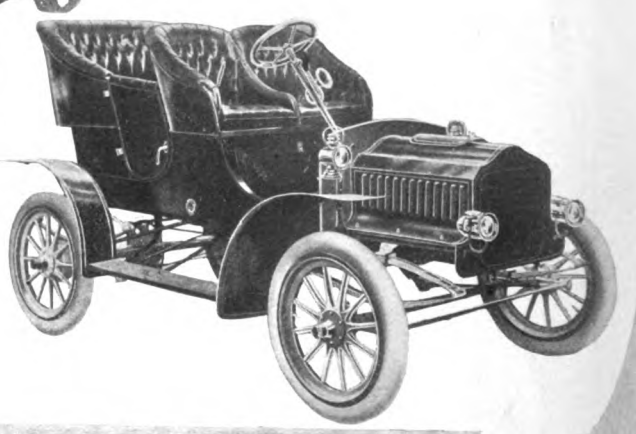


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A Monthly Magazine Devoted to Motoring of All Kinds.

Published by New Publication Company.
NEW YORK, BOSTON, CHICAGO, SAN FRANCISCO, LOS ANGELES.
Entered as second-class matter at the New York, N. Y., Post Office, March, 1904.

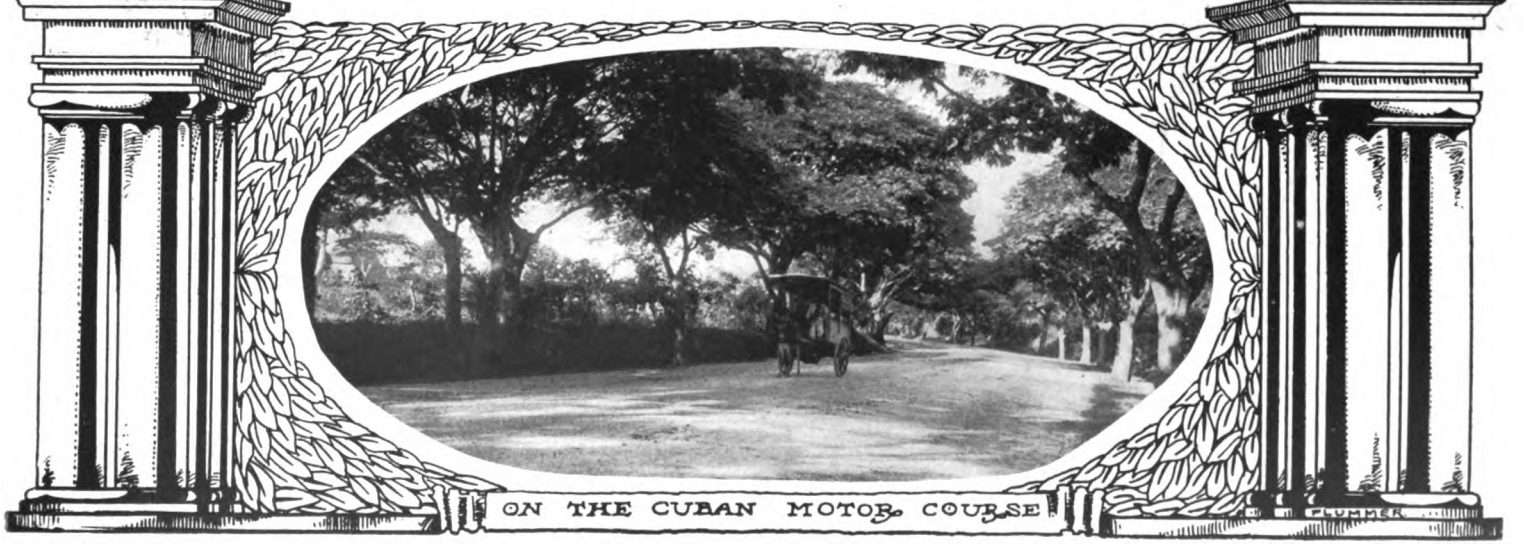
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Postage free in the United States, Canada, Mexico, Hawaii, Porto Rico, and the Philippines. Postage in other countries, $1.00 per year extra. Address business communications and make checks payable to MOTOR. Anything connected with the editorial department should be addressed to the editor.

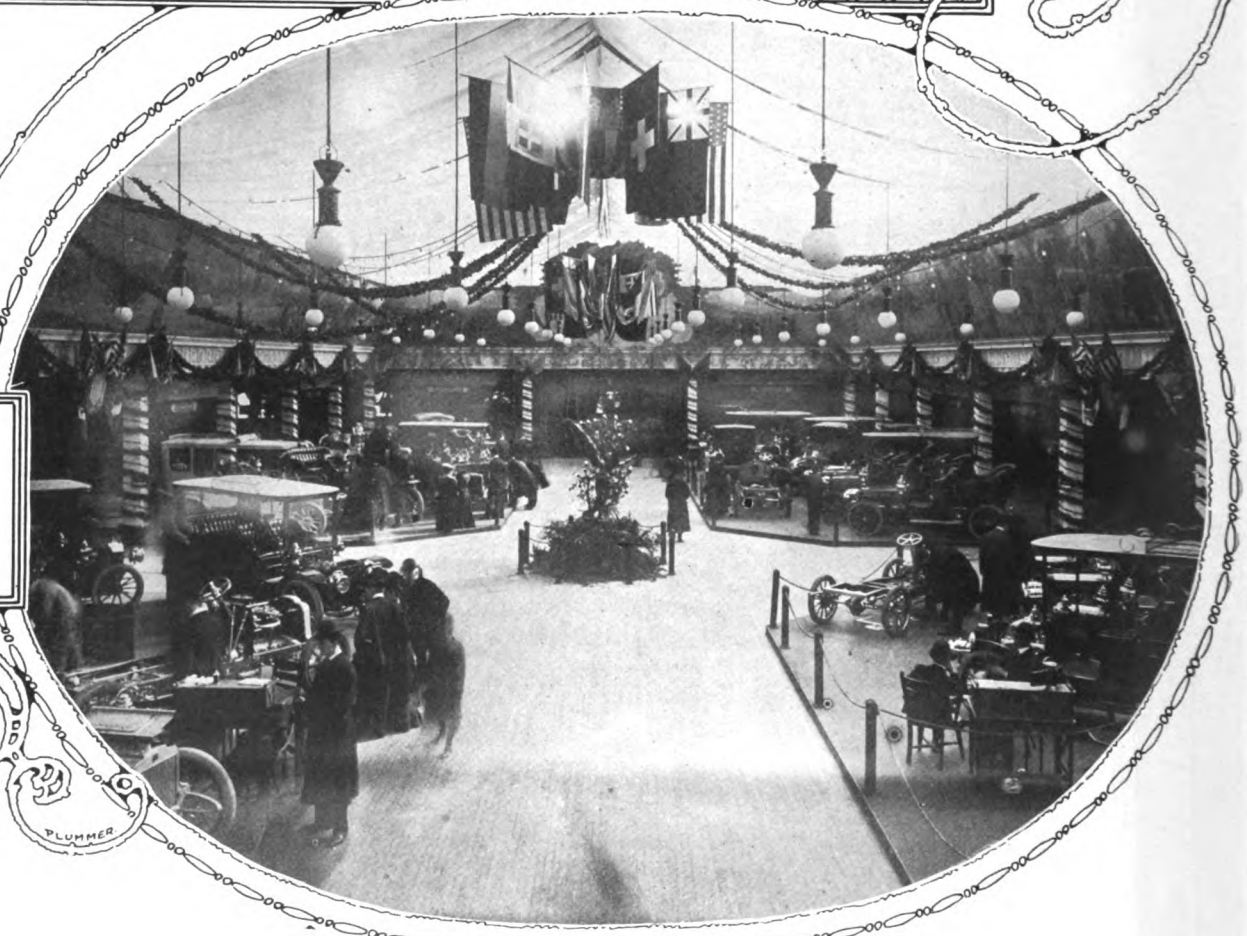


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THE 1905 SHOWS



THE AMERICAN EXHIBITION.

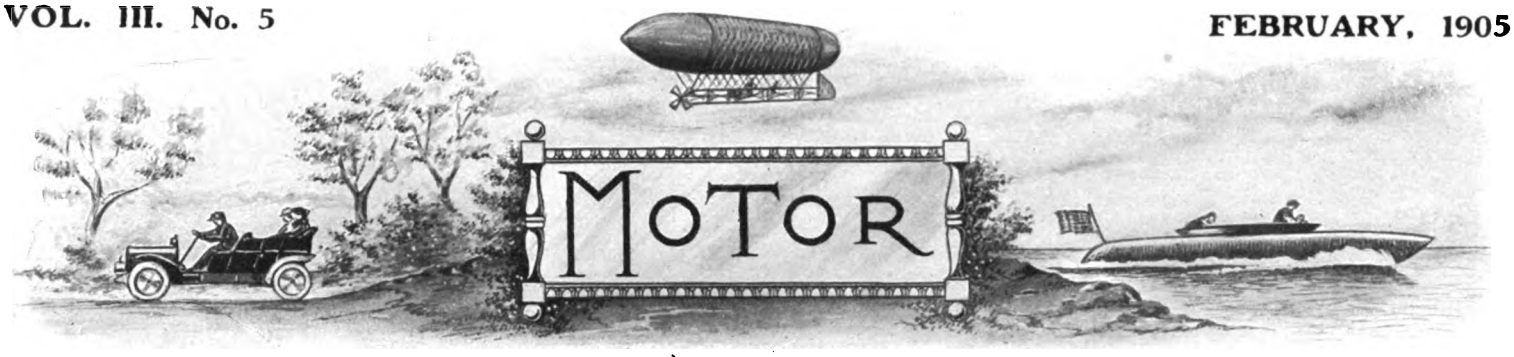


THE IMPORTERS' SALON

PLUMMER

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VOL. III. No. 5 FEBRUARY, 1905



THE SHOWS ARE THE THING

By A. G. Batchelder

An industry that can emerge from its swaddling clothes in the brief space of five years—free itself quickly from the ridicule associated with early experimental effort—gradually wear down the prejudice of a sceptical and antagonistic public—place itself upon an equality with foreign competition which had a lead of several years—such an industry must of necessity have a permanent future of widespread influence in the welfare of the nation.

For years man intermittently had struggled with the problem of the transportation of the individual—the fixed avenues of steel rails and the confined scope of water travel failing by many degrees to answer the requirements. What was demanded embraced a vehicle that could accomplish journeys and carry loads far beyond the capacities of the horse, surmount hills of no mean grade, and conquer highways that often scarcely deserved the name.

Crude were the contraptions that first came forth; years lapsed between discouragements and improvements; but finally the idea crystalized, and then it gained in velocity and attained full growth in rapid bounds.

To appreciate this wonderful upbuilding of a great industry, one must be conversant with the early trials and tribulations that beset pioneers, like Winton, Riker, and White. With much satisfaction, indeed, must they have looked over the Fifth Annual in Madison Square Garden—an exhibition that covered the gamut of American motoring, providing for it in every conceivable form.

The products of a hundred makers, ranging in price from $375 to $8,000, were distributed about the big building, which could not meet by considerable the heavy demand for housing comfortably all concerns that in the metropolis desired to display wares to the American public.

The exhibits filled the capacious amphitheatre, rose upward to the galleries, descended into the cellars, and also required the large hall intended for restaurant accommodations.

This astounding growth began five years ago with a cramped and small section of the bicycle show, then spread the following year over the entire amphitheatre except for enough space to permit a demonstrating circle around the exhibits, and the next year this lusty industrial youngster, now with his long trousers, needed the room that had been used for the ten-lap track.

The foreign makers contributed generously in the 1903 and 1904 shows, but finally became dissatisfied with their allotments, for the American maker naturally insisted upon more consideration in a show conducted under the direction of his own association. Though the importers decided to hold a Salon of their own, three foreigners elected to hold forth in the Garden with the best spaces that could be obtained.

This Fifth Annual Show was the concluding one under the auspices of the National Association of Automobile Manufacturers, the Automobile Club of America, and the company owning the Madison Square Garden. This trinity of control did its terminating work in a manner the equal of that of its two previous exhibitions.

Now enters the Association of Licensed Automobile Manufacturers with a two-year tenure and an optional additional period. Despite divided talk that came on the heels of the news, the prediction is ventured that the Salon advocates will not set in an arbitrary manner towards those concerns which cannot see the license situation from the same standpoint.

The show that held forth in the Garden, from January 14 to 21, was American in every sense of the word—and the home makers had no selfish reason except that compelled by lack of room to avoid comparison with the cars that come across the ocean.

It was a difficult proposition to satisfy the intending purchaser who could not find a motor-driven vehicle suitable to his needs and his purse in the array that comprised everything from the energetic little buckboard, on to the more comfortable runabout, next to the light touring car with its increased speed, then to one of greater speed power, and finally to the leviathans that carried a half dozen or more passengers. Such luxuries as the limousine body and excess horse-power—available only in competition or when the road stretches ahead in the open country, free from all other traffic—were things procurable to the man who wanted them and stood ready to pay, which many willingly did.

After one found a car that suited his fancy, it was possible for him to arrange a demonstration ride in a similar vehicle awaiting on the outside of the building. This feature was more extensive this year than ever before, and the immediate opportunity of trying the car of your choice undoubtedly resulted in many sales, for even the intending motorist needs prompt attention when the fever is in his veins.

Besides the hundred makers, there were 150 other exhibitors, whose stands contained all else allied to the motor car and even parts of the cars themselves. One was able to decide upon the particular make of tire which best suits the road conditions of his home vicinity, pick out the searchlight which turns night into day and insures safety to all users of the highway, study the several forms of ignition, and decide upon the honk of the horn. There were expositions of the internals of the machines, and even the veriest novice gained some idea of what causes the wheels to go round.

Though the commercial type of motor vehicle found a minor place in the show, the opinion existed and is gaining impetus that in the immediate future a more thorough and complete presentation of this branch of the industry is a demand that must be met by a separate exhibition. The pleasure vehicle having attained a high degree of excellence, many makers are preparing and not a few have prepared for a market that will be very profitable in the long run.

During the show there were meetings and gatherings, banquets and luncheons, and all sorts of social fixtures. It was a hustling inning for a week and a day, and then ensued the rush southward for the vacation week of strenuous racing on the Ormond-Daytona course.

Beginning on February 4, the annual Chicago Show under N. A. A. M. auspices will attract the westerners who could not afford to visit New York. Almost a duplicate of the Garden will be the Coliseum display, in addition to an advantage in the way of more ground-floor space.

Detroit, Cleveland, Buffalo, Boston, and Washington are contained in the circuit of substantial shows that will follow one another and continue educating the eager public into the realm of motoring.

The Importers' Salon started in Herald Square Hall several days in advance of the American Show and continued for a fortnight. Well planned and carried out, the importers put forth their offerings in an artistic setting of Pal's panels, palms, and bunting. Society approved and foreign ambassadors or their representatives assisted in the brilliant gathering on the special invitation inauguration. The results were adequate, according to the exhibitors, and the Salon may have a second inning a year hence.

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AMERICAN CARS VS. FOREIGN CARS

By Albert A. Pope

There are a good many valid reasons why Americans should purchase motor cars manufactured in this country.

A great many are influenced by the patriotic sentiment that one should patronize home industries and thus foster the interests of our own people.

This is a rational line of thought, and one to be thoroughly commended, especially in cases where the products are of as good a quality as those of other countries.

Apart, however, from all sentiment in the matter, Americans should purchase American-made motor cars because we have proved our ability to turn out the very best of mechanical work.

Nothing attests this more strongly than the fact that the foreign motor vehicle factories are either already equipped with machinery made in the United States, or the owners are preparing to change over their plants, purchasing our machinery for this purpose. This is because American machinery, even with the high wages paid to American mechanics, is capable of turning out a higher grade product at lower cost than is possible by any other means.

American inventive and mechanical genius never yet has taken second place to any other country in the world, and it is folly to presume that the motor-car industry is to constitute an exception.

It is true that the French manufacturers began work on motor cars some time before we did, and, therefore, studied out many points in design and construction which we, coming in a little later, have been very glad to copy; but, in addition to what we have learned from the experience of foreign makers, our skilled mechanics have added on their own part great value to the modern up-to-date motor cars.

We have studied not only the construction of the car as a whole, but also the design and make-up of each constituent part, always keeping in mind the cardinal function of the gasoline car, which is to traverse successfully long distances on the average American highway.

We believe in equipping our plants with the very best of machinery, and never consider money unwisely spent which will either raise the standard or increase the output without detriment to quality.

The very fact, conceded by home manufacturers and importers alike, that the United States is the greatest market in the world for motor cars is proof enough that American cars must be superior, for quantity production is a fundamental requirement of good work at reasonable prices.

When once the tools and machinery in an American factory have been brought into perfect condition for the turning out of a definite model, we can manufacture that model in large numbers, insuring both perfection in construction and a profit in manufacturing, and without these two essential elements there can be no lasting success to any industry.

This perfection in mechanical equipment and in the method of developing plans enables us to build cars with a complete interchangeability of parts, so that if any portion of a machine is damaged or broken a part which will exactly fit its place can be immediately secured from the factories or from the various distributing centers, such as branch houses, large agencies, etc.

Having placed the plants in a position to manufacture goods of the highest quality in large quantities, we find that, quality being equal, we can outbid the world on price; or, to put this in another way, in the present state of the industry in the United States it is my belief that a purchaser can secure for, say, $3,500, a better car here than can be had for more money in any other mart in the world. At lower prices, we have no competition whatever, and the light car—probably, everything considered, the one really most available to the greatest number of users—has reached a development in this country that has not been even commenced abroad.

The past history of the wonderful achievements of American inventive genius and manufacturing skill can lead our minds to but one conclusion, namely, that the next few years will find foreign cars a drug in the American market.

Yes, more than this, foreign purchasers will be looking to America for the highest type of motor cars.

As we approach that point the export trade in motor vehicles will materially increase, becoming finally a very important factor in this wonderful industry.

By E. R. Hollander

While it very properly may be a source of regret to Americans that the best motor cars of the world still hail from Europe, the fact is simply a natural consequence of the longer experience of the European manufacturers.

The American manufacturer has shown and still shows an unaccountable tendency to devise freak constructions, rather than accept standardized European practice. For this reason, American cars are improving only as they become slavish copies of foreign designs. For instance, it is only this year that several of the most prominent American manufacturers have conceded the errors in their previous practice by a much-delayed adoption of the four-cylinder, vertical-motor-in-front.

Flagrant instances of American inexperience in motor-car construction are numerous. Thus, one American maker, of supposedly high standing, put out a considerable number of cars in 1904 that did not have double-acting brakes, and which, therefore, could not be stopped in case they started to back down a hill. Another prominent American car, in all of its 1905 models, has a propeller shaft normally making an angle with the engine mainshaft, thus keeping the universal joints in constant use, instead of having them come into play only when the spring action permits the rear wheels to rise above or below their normal position. Still another example of 1905 American construction has cylinders so clumsily cast that offsets are visible on their surfaces, because of displacement of the molds. A change-speed gear carried on the rear axle, where its weight imposes tremendous and altogether unnecessary stresses, is the offense to good mechanical common sense perpetrated by a fourth prominent American concern. As an example of the impossibility of securing good materials in this country, the breakage of three steering knuckles, within two weeks, of a specially-built racing car made by a fifth American firm, undoubtedly honest in its efforts to turn out a high-grade product, can be cited.

The desire to make an immediate profit, while natural enough, is not the least of the American manufacturer's handicaps. It takes several years of costly experimenting to learn how to build a good car, and the established European builders passed through this period long before they commenced to make money. Dividends cannot come before development, without working injury to the purchaser's interests.

American disbelief in ball bearings is a typical instance of American conservatism and self-sufficiency. Though it is true that ball bearings of the bicycle type are unsuitable for heavy work, non-adjustable ball bearings, of the make that has been giving marvelous results for several years on practically all European cars, are a totally different proposition.

Several common misconceptions exist regarding foreign motor cars. Abroad they cost no more than the best American cars that actually deliver an equal horsepower, but on this side of the water there must be a 45 per cent. duty and a 5 per cent. shipping charge added. That Americans cannot build for less than Europeans was recently proved when the foremost machine works in the United States was asked to duplicate a well-known foreign car. Their lowest estimate, with a quality guaranteed, was 20 per cent. higher than the selling price of the car after importing.

Though the polished chassis that American manufacturers are now exhibiting often "appear as well as the best work of the foreign maker," it must be remembered that a high polish is no evidence whatever of the tensile strength of metal.

Not the least important advantage in buying a foreign car is the prices that these cars bring second-hand. I know of one foreign car, which cost $6,700 when it was new, being sold for $5,200 after it had been run 8,000 miles within a year, over American roads. This is a fair average case, while it is the evidence in all dealers' allowances and at every auction sale that 30 per cent. of the cost is a high average to secure for a second-hand American car.

It often is stated that foreign cars are not adapted to American roads, and in one trifling detail—the matter of road clearance—this has been true. Now, however, every foreign manufacturer of prominence is supplying cars for the American trade, with underbodies high above the road. This removes the only valid argument against the splendid modern motor car that was originated in, and still comes in its highest perfection, from Europe.

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THE AMERICAN SHOW

By Victor Lougheed

Each year, for the past five, the great motor show at Madison Square Garden in New York City has made a host of converts to the cult of the new conveyance. Unquestionably, this has been largely due to the complete exposition of motor-car mechanism there on view in all manner of forms, including sectioned and working models, and stripped chassis. At the 1905 show, more than ever before, the exhibitors followed the wise policy of displaying, in every ingenious way possible, the mechanism of their cars.

Since the motor car is a machine, naturally the chief interest of the public centers in the details of its mechanism. Pronounced tendencies in certain directions are very evident; but, on the other hand, these tendencies are vigorously combatted with plausible arguments, as only temporary deviations from the paths that are to lead to the perfected vehicle of some future day.

The four-cylinder vertical motor, in front under a bonnet, overshadows all other constructions. More manufacturers than ever before have come to this type, which varies this year from its previous forms chiefly in detail. This seems to indicate that the four-cylinder type, which was originated abroad, is well on its way toward standardization.

Despite the popularity of the four-cylinder engine, the single-cylinder, horizontal motor under the body; the two-cylinder, horizontal-opposed motor under the body; and the two-cylinder, horizontal opposed motor, crosswise in front; are favored in many very practically built cars, some of which are remarkable values for the prices that are asked for them. In this connection, it is almost unnecessary to remark that, as one goes lower in the scales of size and price, the four-cylinder type becomes anything but standard practice.

Most four-cylinder engines have the cylinders cast in pairs; but there is a noticeable tendency toward casting them separately.

Inlet valves, which admit the explosive mixture to the cylinders, are for the most part mechanically operated, but the automatic valve still is adhered to by a few makers whose experience and success vindicate their practice.

Ignition systems, by which the explosive mixture of gasoline vapor and air is ignited within the cylinders, so that power will be developed by the consequent combustion and expansion, are the same as of previous years, though improved in detail. Electric ignition, of course, is universal, though it appears in many forms. Both the jump spark—in which a high-tension electric current leaps across fixed terminals within the cylinder—and the make-and-break—in which moving parts within the cylinder separate, so that a spark is produced between them at the moment combustion of the fuel is required—are employed. For the source of the electric current, dry batteries, storage batteries, magnetos, and dynamos, are in use, each possessing peculiar advantages of its own and having a following that is strenuous in its advocacy.

Carbureters, for vaporizing the gasoline and then mixing the vapor with the proper quantity of air to render it explosive, are chiefly of the automatic, or compensating, pattern. In this, provision for a varying auxiliary air admission renders the mixture uniform in composition throughout the entire range of effective engine speed. The feed of the gasoline to the carbureter is in most cases controlled by a float, though there is some use of positive-acting valves.

From the motor, the power is transmitted first to a change-speed gear, of one of three types that have become standard. These are the sliding-gear, in which varying ratios of gear reduction are brought into use by sliding corresponding combinations of spur gears sidewise into mesh; the individual-clutch gears, in which any pair of a set of spur gears, constantly in mesh, can be rendered operative or idle, at will; and the planetary gear, in which a rather complicated, but very serviceable, sun-and-planet arrangement is adopted. Sliding gears are most favored for the large cars, and planetary gears for the smaller.

With sliding gears, a clutch is necessary, to permit of disconnecting the engine from the gears, during the moment they are shifted. This clutch commonly consists of a cone, often leather-faced, which enters a turned seat in the flywheel face until it is held there by frictional engagement. Some sort of arrangement is used by almost every manufacturer for avoiding end thrust with clutches of this pattern, which is a marked improvement over the practice of former years. By a few, clutches consisting of expanding shoes, or of constricting bands, are favored instead of the cone.

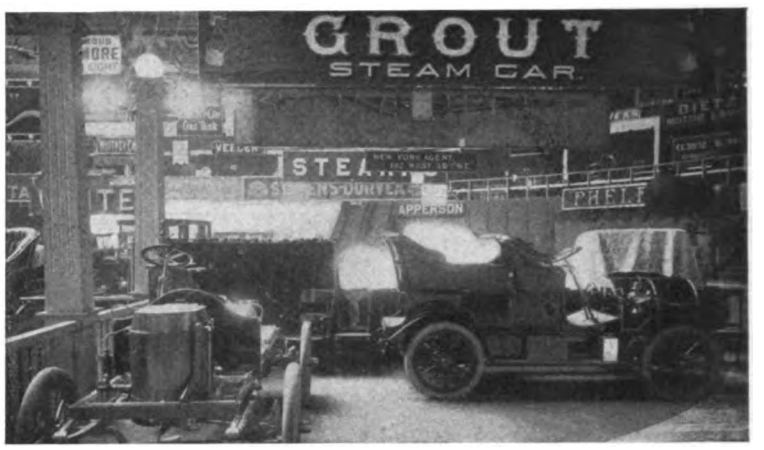


From the change-speed gear, the drive to the rear wheels is by single or by double chain, or by propeller-shaft on which there is a bevel gear that meshes with a larger one on the rear axle.

On the rear axle, or at some other

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point in the transmission system, all cars have an equalizing device of some sort—usually a differential gear—to permit of one driving wheel running faster than the other in going around a curve.

Frames on most of the cars, especially on the larger ones,





are in most cases of thin sheet steel, about one-eighth of an inch thick, formed by mammoth dies into channel members—in cross section practically like the top, bottom, and back lines of a letter E. A few makers favor wood for the frames of their cars, but use steel at least to brace and strengthen the



joints of the lighter material. Frames of steel tubing, like that used in the bicycle, are to some extent in evidence, especially for light cars. As a rule, however, the light car has an angle-steel frame, riveted up from steel members—in cross section like a letter L. The frames of one foremost make of







American cars are distinctive in that their cross section is like an inverted U.

A most commendable tendency with many makers is that of protecting the mechanism from dust and mud, either by enclosing the working parts or by using sheet-metal dust aprons, or pans, riveted to, or made integral with, the side members of the frame, and constituting a perfect protection beneath the whole power plant. In a couple of instances the function of such a pan is extended to that of actually supporting the power plant, as well as of merely protecting it.

Almost without exception, the 1905 cars have wood wheels, of the well-known artillery pattern, in which the spokes are not staggered at the hubs. Most of the few exceptions are wheels of steel tubing, in outward appearance almost identical with the wood artillery. The wire wheel, which did yeoman

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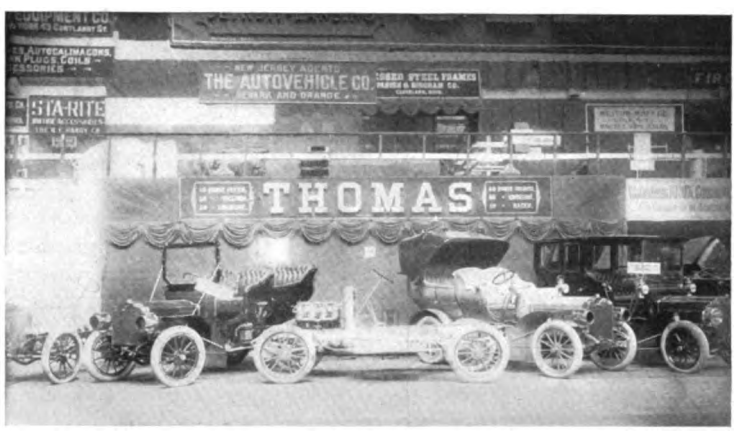


service in the days of the bicycle, and during the earlier development of the motor car, finds a place on a few of the lightest vehicles. The much-heralded disk wheel still remains in the background, only a case or two of its application existing.

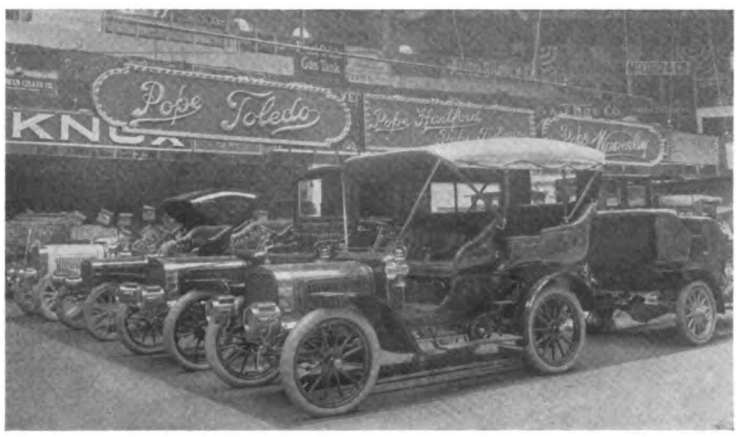
The necessary cooling that all gasoline engines require is effected, on a great majority of the cars, by water-jacketing the cylinders, and circulating through these jackets a quantity of water. This water, which does not exceed three or four gallons in the most efficient systems, is kept from boiling away, in spite of its being used over and over again, by cooling in a radiator exposed to drafts of air induced either by the forward motion of the vehicle, or by a fan, usually the latter, often both. Cellular and honeycomb radiators seem to be most preferred, but those made up of gilled tubing possess many advantages. The water is kept in circulation by a rotary or centrifugal pump, or simply by thermosyphon action. In the latter case, the natural tendency of the water to circulate as it is heated in one part of the cooling system and cooled in another, is depended upon.

Despite the prevalence of water cooling, air cooling has achieved wonderful advances, and this year is applied to several large and powerful cars.

Wheel steering has all but displaced the once common levers and tillers. Even where the latter are retained, wheel steering is made optional except on the lightest cars. Also, with the exception of the lightest cars, steering nowadays always is irreversible. This means the use of such constructions as prevent any shock given to the front wheels, by obstructions, etc., from being communicated to the hands of the operator. It also prevents the angle of the steering wheels being altered otherwise













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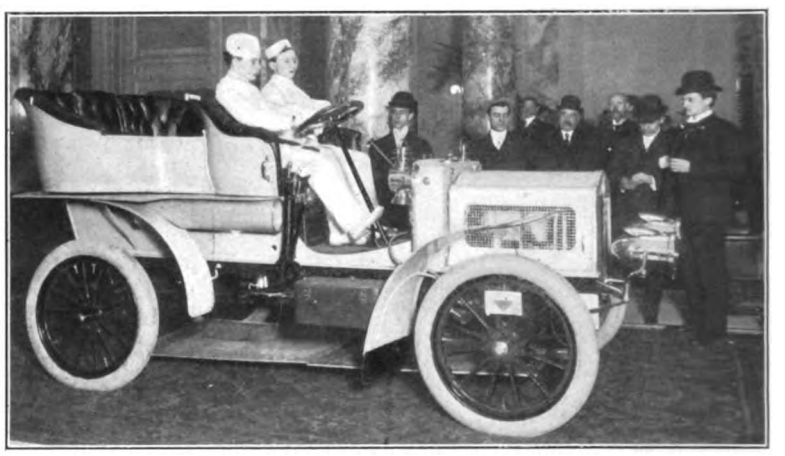


than through deliberate intention of the driver.

Springs are much as they have been for several years past, the half-elliptic being most favored. There is, however, a marked tendency to use platform springs at the rear, this being a combination of three half-elliptic springs that is said to conduce greatly toward easy riding. Full-elliptic springs are provided on many of the medium-weight cars, and it is notable that one of the most famous foreign firms has reverted to this type for its heaviest cars. On small cars, the side spring and similar simple constructions are widely applied. Various cushioning devices, to prevent breakage of springs when they rebound from road inequalities, are increasing in use.

Brakes have improved during the passing year, and standard usage now calls for at least two acting on the driving wheels, and one or more at some point in the transmission. To render them dustproof, many hub brakes are made expanding, and





are enclosed. The use of compensating arrangements, so that the rear-wheel brakes always are certain to be applied equally, regardless of adjustment, also is general.

The detachable pneumatic tire is universal on the pleasure vehicles, with the possible exception of one or two—in which selling price has been reduced to the lowest limit—which use single-tubes. Detachable tires are double-tube, being composed of an outer casing, or "shoe," consisting of rubber and specially-woven, stout, cotton fabric, which is designed to take the wear of the road and provide strength enough to retain the air; and of an inner tube, the sole function of which is to retain the air, it being absolutely air-tight, though not of great strength, except when reinforced by the outer casing.

Most detachable tires are of the clincher pattern, in which the casing is held on the wheel rim by the pressure of the contained air against its beveled edges, which hook into the inturned edges of the rim. Mechanically-fastened tires, the chief advantages of which are ready removal and replacement when repair is required, are multiplying in variety. This year is notable as the first in which means of mechanical attachment have been devised suitable for use in connection with the long-standard clincher tire. For heavy commercial and other vehicles, no substitute has been found for solid rubber, though iron and blocks of end wood are not out of the running.

A rather surprising tendency, which seems to be growing stronger, and which is common to both foreign and American makers of repute, is that toward the use of slightly larger tires on the rear wheels than are used in front. This makes it necessary to carry two extra shoes instead of one for replacement, and it is not altogether clear, when once tires of suitable strength for the driving wheels are decided upon, why the same tires should not also be applied to the front wheels, even though the wear on these is less serious.

The steam motor car to-day is more prominent by the number of individual cars in use than by the number of makes. The number of manufacturers gives only a poor idea of the steamer's prevalence on the highroads.

The most radical departure in steam practice is one maker's entirely practical provision of a change-speed gear for hill climbing, and to do away with hand pumping.

In the opinion of many, the almost ideal control that is a feature of the steamer constitutes an advantage not to be overestimated. By the use of condensers, the water-supply problem with this type of power is largely eliminated, and a 100-mile radius on one filling of the tanks is common.

The appearance of several steamers closely simulating gaso-





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line cars in outward form is certain to lead this power to a greater popularity than ever.

There is little competition between electric motor vehicles and those of the two other prominent types. The electric probably is the cleanest and simplest to control, advantages which render it the vehicle par excellence for strictly metropolitan use by women, deliverymen, truckmen, and others. It is a fact that the electric has a comparatively limited radius of action, in the vicinity of charging stations, and it may be somewhat more expensive than gasoline and steam in the matters of care and maintenance, but nothing can compete with it in its particular field, and its fast-increasing use is sufficient demonstration of its worth.

In the matter of bodies, there is variety to meet every taste and demand. Large touring cars, capable of carrying from four to seven people, unquestionably constitute the chief output of a majority of the manufacturers who exhibited at the 1905 show. Nevertheless, the less numerous manufacturers who cater to a different trade, with small, inexpensive, two-passenger and four-passenger runabouts, make many more cars than do all the others together.

The side-door touring car, really a sort of surrey with closed sides, has all but superseded the once dominant tonneau with rear entrance. The average side-door car, if it has not the engine in front under the bonnet, has at least a dummy bonnet concealing the fuel tank and various other essential but not sightly details of the mechanism. Front seats are both single and divided, with an unquestionable tendency to do away with the still popular divided construction, which is less necessary now that the driver does not have to brace himself for the manipulation of stiff-working levers. Rear seats are such that at least two and sometimes as many as five people can find room to ride in them in comfort.

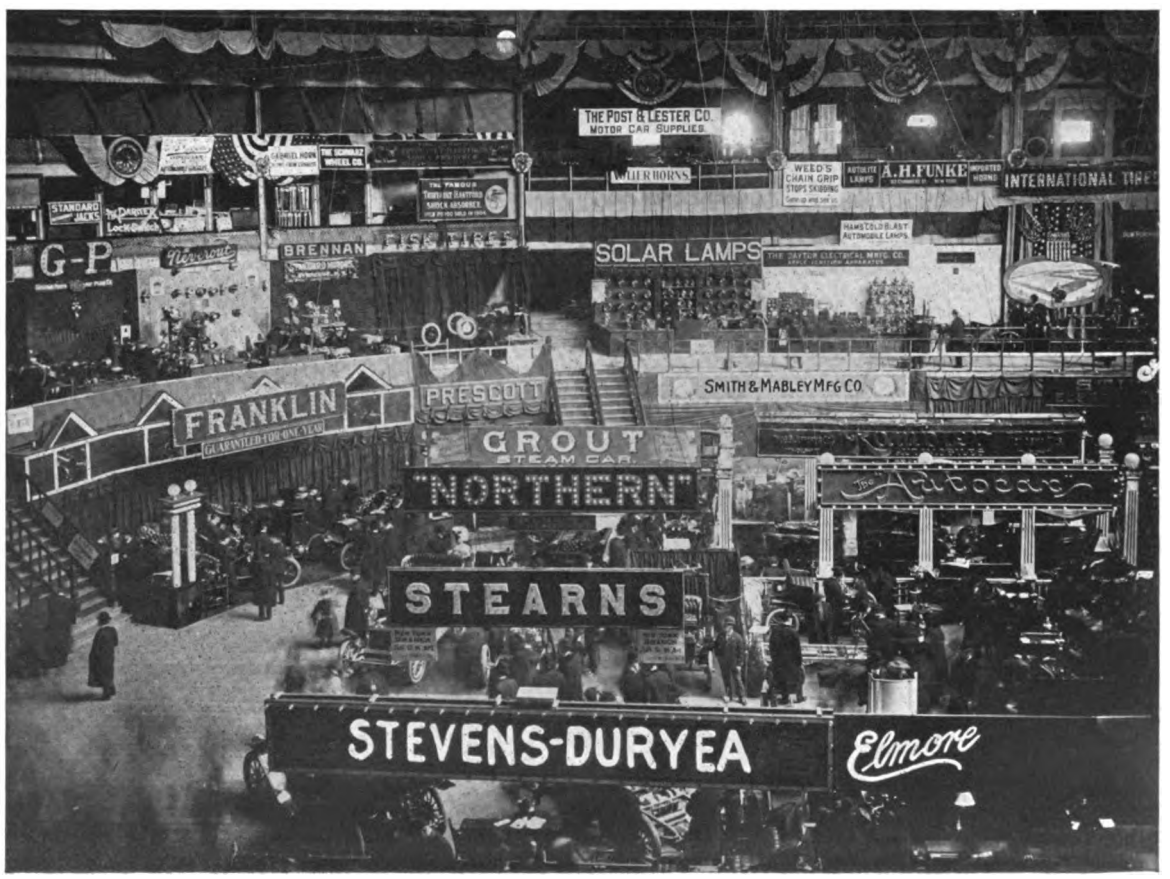
The canopy top still is a standard equipment, but the Cape hood, so called because originated for South African wagons, visibly has hurt its popularity. The canopy top, with a solid rear to keep out the dust, is commoner than formerly, and side curtains and glass fronts, of course, are provided. An improvement in side curtains is the tendency to fit them with large celluloid windows, a foot or more square, and capable of being rolled up tightly with the curtain.

Enclosed bodies—chiefly the Limousine and the landaulet—are growing in popularity for urban and rough-weather use. Among the 1905 novelties are several inside-driven broughams and coupés, suitable for cross-country touring, and yet not greater in weight than the ordinary touring car.

The prices of the 1905 American cars range from a $375 runabout and a buckboard of the same price, both fully capable of taking two people along any ordinary road, to about $8,000 for the most elaborate types of closed-body touring cars, of the most capable and luxurious patterns.

While perhaps not apparent to the casual visitor, one of the most significant features of the show was the substantial importance the light commercial vehicle is assuming. Naturally, the pleasure interest being dominant and space restricted, the exhibits were for the most part confined to passenger-carrying cars, but a glance through the catalogues of the different makers was enough to show that in practically every one commercial vehicles were included. Many of these are exactly the same as the passenger vehicles of corresponding power, except for the substitution of a delivery-wagon top for detachable rear seats. For from $800 to $1,000, excellent delivery wagons capable of carrying up to 1,500 pounds as far as several horse vehicles can go in a day, are to be had.

Many of these wagons have been sold, both with the passenger equipment and the delivery top, and it is likely that numbers of the country buyers will use their new purchases to deliver goods to customers throughout the week, and to take their families to church or for an outing on Sundays and holidays.



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DETAILS OF AMERICAN MOTOR CARS

Gasoline Motor Cars

NAME	PRICE	BODY	SEATS.*	WT.	FRAME	ENGINE	CYLINDERS	HP.	TRANSMISSION	†	‡	¶
Locomobile	$7,500	Side entrance	8	2,800	Pressed steel	Vertical, in front	4—In pairs	40-45	Sliding-gear, 4 speeds & R.	110	54	9
Amer. Mercedes.	7,500	Touring car	7	2,600	Pressed steel	Vertical, in front	4—In pairs	40-45	Sliding-gear, 4 speeds & R.	—	—	—
Matheson	6,000	Side entrance	7	2,800	Armored wood	Vertical, in front	4—Separate	40	Individ.-clutch, 3 speeds & R.	106	56	12
Pope-Toledo	6,000	—	—	—	Pressed steel	Vertical, in front	4—Separate	—	Sliding-gear	—	—	—
Thomas	6,000	Side entrance	7	3,000	Pressed steel	Vertical, in front	6—Separate	60	Sliding-gear, 3 speeds & R.	120	46	10
Lozier	5,000	Side entrance	7	2,500	Pressed steel	Vertical, in front	4—In pairs	—	Sliding-gear, 3 speeds & R.	115	55	10
Simplex	5,000	Chassis only	—	2,090	Channel steel	Vertical, in front	4—In pairs	30	Sliding-gear, 4 speeds & R.	106	54	—
Locomobile	5,000	Side entrance	8	2,500	Pressed steel	Vertical, in front	4—In pairs	30-35	Sliding-gear, 3 speeds & R.	106	54	9
Speedway	5,000	Side entrance	5	2,300	Pressed steel	Vertical, in front	4—Separate	24	Sliding-gear, 4 speeds & R.	105	54	10
Sturtevant	5,000	To order	—	3,000	Pressed steel	Horizontal, amidships	6—Separate	35-48	Automatic-gear, 3 speeds & R.	108	—	10
Graham-Fox	4,000	Side entrance	7	3,600	Tubular steel	Compound, vertical	3—Integral	40	Sliding-gear, 3 speeds & R.	112	—	8
Great Arrow	4,000	Side entrance	5	2,700	Pressed steel	Vertical, in front	4—Separate	28-32	Sliding-gear, 3 speeds & R.	104	56	10
Welsh	4,000	Side entrance	7	2,800	Pressed steel	Vertical, in front	4—In pairs	30-36	Individ.-clutch, 2 speeds & R.	114	—	10
Columbia	4,000	To order	5	3,060	Pressed steel	Vertical, in front	4—In pairs	40	Sliding-gear, 4 speeds & R.	108	55	7
Corbin	4,000	Side entrance	7	2,400	Channel steel	Vertical, in front	4—Separate	24-28	Sliding-gear, 3 speeds & R.	106	56	9
Packard	3,500	Side entrance	5	2,300	Pressed steel	Vertical, in front	4—In pairs	28	Sliding-gear, 3 speeds & R.	106	56	10
Standard	3,500	Side entrance	5	2,000	Pressed steel	Vertical, in front	4—In pairs	25	Sliding-gear, 3 speeds & R.	109	54	10
Franklin	3,500	Side entrance	—	—	Wood	Crosswise, in front	4—Separate	30	Sliding-gear, 3 speeds & R.	104	—	—
Locomobile	—	Side entrance	6	2,300	Channel steel	Vertical, in front	4—In pairs	20-25	Sliding-gear, 3 speeds & R.	96	52	9
Winton	3,500	Side entrance	—	—	Pressed steel	Vertical, in front		40	Three speeds & reverse	106	56	10
Austin	3,500	Side entrance	5	2,400	Angle steel	Vertical, in front	4—Separate	50	Planetary-gear, 3 speeds & R.	108	56	11
Automotor	3,500	Side entrance	5	1,900	Pressed steel	Vertical, in front	6—Separate	24-28	Sliding-gear, 3 speeds & R.	108	56	11
Peerless	3,200	Side entrance	5	—	Pressed steel	Vertical, in front	4—In pairs	24	Sliding-gear, 3 speeds & R.	102	—	—
Rambler	3,000	Side entrance	5	—	Pressed steel	Horizontal, amidships	2—Separate	20	Planetary-gear, 2 speeds & R.	100	56	12
Thomas	3,000	Side entrance	5	—	Channel steel	Vertical, in front	Four	40	Sliding-gear, 3 speeds & R.	—	54	10
Haynes-Apperson.	3,000	Side entrance	5	2,800	Pressed steel	Vertical, in front	4—Separate	35-40	Individ.-clutch, 3 speeds & R.	108	56	12
Beverly	—	Side entrance	6	2,770	I section	Vertical, in front	4—Separate	20-25	Planetary-gear, 2 speeds & R.	110	56	16
Royal	3,000	Tulip body	6	2,400	Pressed steel	Vertical, in front	4—In pairs	32-28	Sliding-gear, 3 speeds & R.	110	—	—
Studebaker	3,000	Side entrance	5	2,100	Pressed steel	Vertical, in front	4—In pairs	20	Sliding-gear, 3 speeds & R.	97	54	9
Springer	3,000	Side entrance	8	2,400	Pressed steel	Horizontal, amidships	4—Separate	24-30	Sliding-gear, 3 speeds & R.	105	56	12
Locomobile	2,800	Side entrance	5	1,800	Pressed steel	Vertical, in front	4—In pairs	15-20	Sliding-gear, 3 speeds & R.	92	50	9
Cleveland	2,800	Side entrance	5	1,800	Pressed steel	Vertical, in front	4—In pairs	18	Sliding-gear, 3 speeds & R.	91	54	9
Cadillac	2,800	Side entrance	5	2,600	Pressed steel	Vertical, in front	4—Separate	—	Planetary-gear, 3 speeds & R.	100	56	8
Acme	2,750	Side entrance	5	—		Vertical, in front	Four	32		—	—	—
Winton	2,500	Side entrance	—	2,100	Pressed steel	Vertical, in front	4—In pairs	24	Two speeds & reverse	102	56	10
Yale	2,500	Side entrance	5	2,500	Angle steel	Vertical, in front	Four	24-28	Sliding-gear, 3 speeds & R.	104	—	—
Sturtevant	2,500	To order	—	—	Pressed steel	Horizontal, amidships	8—Opposed	20-24	Automatic, 2 & reverse	96	—	10
Gaeth Triplex	2,500	Side entrance	5	2,400	Angle steel	Horizontal, amidships	3—Integral	24-28	Planetary-gear, 2 speeds & R.	100	54	10
Stevens-Duryea	2,500	Side entrance	5	1,650	Pressed steel	Vertical, in front	4—Separate	20	Sliding-gear, 3 speeds & R.	90	56	14
Franklin	2,500	Side entrance	5	1,800	Wood	Vertical, in front	4—Separate	20	Sliding-gear, 3 speeds & R.	100	—	8
National	2,500	Side entrance	5	2,200	Pressed steel	Vertical, in front	4—Separate	24-30	Sliding-gear, 3 speeds & R.	98	54	10
Upton	2,500	Side entrance	5	2,200	Pressed steel	Vertical, in front	4—In pairs	—	Sliding-gear, 3 speeds & R.	100	56	9
Frayer-Miller	2,500	Side entrance	5	1,600	Pressed steel	Vertical, in front	4—Separate	24	Sliding-gear, 3 speeds & R.	96	56	10
Moline	2,500	Side entrance	5	2,000	Angle steel	Vertical, in front	4—In pairs	24	Sliding-gear, 3 speeds & R.	105	56	10
Phelps	2,500	Side entrance	5	1,850	Frameless	Vertical, in front	3—Integral	20	Individual-clutch, 3 & R.	108	56	10
Adams-Farwell	2,500	Coupe	4	2,200	Angle steel	Horizontal, revolving	3—Separate	20	Sliding-gear	84	56	11
Marmon	2,500	Side entrance	5	2,000	Pressed steel	Vertical, in front	4—Separate	16-20	Planetary-gear, 2 speeds & R.	90	56	10
Northern	2,250	Limousine	5	2,400	Angle steel	Crosswise, in front	2—Opposed	—	Planetary-gear, 2 speeds & R.	100	56	14
Compound	2,250	Side entrance	5	2,225	Pressed steel	Vertical, in front	3—Compound	20	Sliding-gear, 3 speeds & R.	100	—	10
Springer	2,250	Delivery wagon	—	2,400	Angle steel			—		90	57	12
Rambler	2,000	Side entrance	5	2,200	Pressed steel	Horizontal, amidships	2—Opposed	20	Planetary-gear, 2 speeds & R.	100	56	12
National	2,000	Tonneau	5	2,000	Pressed steel	Vertical, in front	4—Separate	—	Sliding-gear, 3 speeds & R.	76	54	9
Ford	2,000	Side entrance	5	1,750	Pressed steel	Vertical, in front	4—Separate	20	Planetary-gear, 2 speeds & R.	93	56	8
Autocar	2,000	Side entrance	5	1,900	Armored wood	Vertical, in front	4—In pairs	16-20		96	54	9
Oldsmobile	2,000	Delivery wagon	2	—	Pressed steel	Horizontal, amidships	2—Separate	16	Planetary-gear, 2 speeds & R.	83	55	11
Model	2,000	Side entrance	6	1,600	Angle steel	Horizontal amidships	Opposed	20	Sliding-gear, 3 speeds & R.	90	56	12
Bates	2,000	Side entrance	5	1,800	Pressed steel	Vertical, in front	3—Separate	18-20	Three speeds & reverse	92	56	11
Corbin	2,000	Side entrance	5	1,650	Channel steel	Vertical, in front	4—Separate	16-20	Sliding-gear, 3 speeds & R.	94	56	10
Orient	2,000	Side entrance	5	1,700	Pressed steel	Vertical, in front	Four	18-20	Sliding-gear, 3 speeds & R.	96	56	10
Stoddard-Dayton	2,000	Side entrance	5	—	Pressed steel	Vertical, in front	4—Separate	25	Sliding-gear, 3 speeds & R.	96	56	—
Acme	2,000	Opera bus	6	2,000	Armored wood	Vertical, in front	Two	16	Sliding-gear, 3 speeds & R.	84	—	—
Acme	1,900	Side entrance	5	—	Angle steel	Horizontal, amidships	2—Opposed	14-16	Planetary-gear, 2 speeds & R.	90	56	7
Pungs-Finch	1,850	Side entrance	5	1,800	Pressed steel	Vertical, in front	4—Separate	22	Sliding-gear, 3 speeds & R.	97	56	11
Winton	1,800	Side entrance	—	1,800	Pressed steel	Vertical, in front	4—In pairs	16	Two speeds & R.	90	56	10
Wolverine	1,750	Side entrance	5	1,700	Angle steel	Horizontal, amidships	2—Opposed	18	Sliding-gear, 3 speeds & R.	88	56	9
Pungs-Finch	1,700	Side entrance	4	1,750	Pressed steel	Vertical, in front	4—Separate	20		80	56	9
Northern	1,700	Side entrance	5	2,100	Angle steel	Horizontal, crosswise	2—Opposed	—	Planetary-gear, 2 speeds & R.	100	56	14
Studebaker	1,650	Side entrance	5	2,080	Armored wood	Horizontal, amidships	2—Separate	14-16		—	—	—
Orient	1,650	Side entrance	5	1,450	Pressed steel	Vertical, in front	Four	14-16	Sliding-gear, 3 speeds & R.	96	56	9
Model	1,600	Side entrance	5	1,400	Angle steel	Horizontal, amidships	2—Opposed	16	Sliding-gear, 3 speeds & R.	86	56	11
Pope-Hartford	1,600	Side entrance	5	—	Armored oak	Horizontal, crosswise	2—Opposed	—	Sliding-gear, 3 speeds & R.	88	56	—
Moline	1,600	Side entrance	5	1,700	Angle steel	Vertical, in front	4—In pairs	18	Planetary-gear, 2 speeds & R.	82	—	9
Logan	1,600	Side entrance	5	1,620	Angle steel	Horizontal, amidships	2—Opposed	20	Sliding-gear, 2 speeds & R.	90	56	9
Duryea	1,550	Folding front	4	1,200	Armored wood	Inclined, in body	3—Integral	12	Planetary-gear, 2 speeds & R.	75	56	14

*This refers to the maximum number of passengers the car will seat. †Wheel base—in inches. ‡Tread—in inches. ¶Clearance—height of underbody above road.

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Gasoline Motor Cars—*Continued*

NAME	PRICE.	BODY	SEATS*	WT.	FRAME	ENGINE	CYLINDERS	HP.	TRANSMISSION	†	‡	¶
Maxwell-Briscoe	1,550	Side entrance	6	1,800	Pressed steel	Horizontal, in front	2—Opposed	16	Sliding-gear, 3 speeds & R	84	56	14
Franklin	1,500	Runabout	2	1,100	Angle steel	Vertical, crosswise	4—Separate	12	Planetary gear, 2 speeds & R	82	—	9
Northern	1,500	Side entrance	2	1,900	Angle steel	Crosswise, in front	2—Opposed	17	Planetary-gear, 2 speeds & R	88	56	14
Columbia	1,500	Tonneau	4	1,870	Pressed steel	Horizontal, crosswise	2—Opposed	12-14		81	55	7
St. Louis	1,500	Side entrance	6	1,725	Angle steel	Horizontal, amidships	One	12	Sliding-gear, 3 speeds & R	82	56	11
Knox	1,500		4	——	Angle steel	Horizontal, amidships	2—Opposed	14-16	Planetary-gear, 2 speeds & R	81	56	7
Haynes	1,500	Side entrance	4	1,500	Pressed steel	Horizontal, amidships	2—Opposed	15	Individ.-clutch, 3 speeds & R	81	56	9
Mitchell	1,500	Side entrance	5	1,700	Pressed steel	Vertical, in front	4—Separate	16-18	Sliding-gear, 3 speeds & R	90	56	11
Marion	1,500	Side entrance	5	1,600	Armored wood	Vertical, in front	4—Separate	16	Planetary-gear, 2 speeds & R	96	56	12
Dolson	1,500		5	2,050	Trussed steel	Horizontal, amidships	2—Opposed	20	Planetary-gear, 2 speeds & R	90	56	10
Walworth	1,500	Tonneau	5	1,500	Angle steel	Horizontal, amidships	2—Opposed	14		80	—	9
Rambler	1,500	Side entrance	5	2,000	Pressed steel	Horizontal, amidships	2—Opposed	16	Planetary-gear, 2 speeds & R	90	56	8
St. Louis	1,500	Delivery wagon	—	1,725	Angle steel	Horizontal, amidships	One	12	Sliding-gear, 2 speeds & R	82	56	11
Oldsmobile	1,400	Side entrance	5	——	Angle steel	Horizontal, amidships	2—Opposed	20	Planetary-gear, 2 speeds & R	90	56	—
Autocar	1,400	Tonneau	4	1,700	Armored wood	Horizontal, crosswise	2—Opposed	12-14	Sliding-gear, 3 speeds & R	76	52	8
Premier	1,400	Tonneau	6	1,500	Pressed steel	Vertical, in front	4—Separate	16	Planetary-gear, 2 speeds & R	82	56	8
Franklin	1,400	Runabout	2	1,000	Armored wood	Vertical, crosswise	4—Separate	12		74	—	8
Stevens-Duryea	1,250	Runabout	4	1,350	Wood	Horizontal, amidships	2—Opposed	7	Individ.-clutch, 3 speeds & R	69	54	14
Michigan	1,250	Side entrance	5	1,700	Angle steel	Horizontal, amidships	2—Opposed	13-16	Planetary-gear, 2 speeds & R	86	55	8
Reo	1,250	Side entrance	5	1,500	Pressed steel	Horizontal, amidships	2—Opposed	16	Planetary-gear, 2 speeds & R	90	56	—
Compound	1,250	Runabout	4	1,325	Angle steel	Vertical, in front	3—Compound	10	Sliding-gear, 3 speeds & R	81	—	7
Elmore	1,250	Side entrance	5	1,500	Trussed steel	Two-cycle, amidships	2—Integral	16	2 speeds & R	83	56	8
Reliance	1,250	Side entrance	5	1,835	Channel iron	Horizontal, amidships	2—Opposed	——	Sliding-gear, 2 speeds & R	90	56	10
Pierce-Racine	1,200	Side entrance	4	1,400	Angle steel		2—Integral	14	Planetary-gear, 3 speeds & R	90	56	11
Model	1,200	Side entrance	5	1,200	Angle steel	Horizontal, amidships	2—Opposed	12	Sliding-gear, 3 speeds & R	86	56	10
Wayne	1,200	Tonneau	5	1,550	Pressed steel	Horizontal, amidships	2—Opposed	16	Planetary-gear, 2 speeds & R	80	56	10
Pierce-Stanhope	1,200	Runabout	4	1,250	Tubular steel	Vertical, amidships	One	8		70	54	6
Buick	1,200	Side entrance	5	1,700	Angle steel	Horizontal, amidships	2—Opposed	22	Planetary-gear, 2 speeds & R	86	56	—
Jackson	1,125	Side entrance	5	1,700	Angle steel	Horizontal, amidships	2—Opposed	16	Planetary-gear, 2 speeds & R	86	56	—
Glide	1,125	Side entrance	4	1,450	Armored wood	Horizontal, amidships	2—Opposed	12-14	Planetary-gear, 2 speeds & R	80	54	8
Michigan	1,100	Tonneau	5	1,650	Angle steel	Horizontal, amidships	2—Opposed	12-15	Planetary-gear, 2 speeds & R	80	55	9
Elmore	950	Tonneau	4	1,300	Armored wood	Two-cycle, amidships	One	10		78	56	7
Ford	950	Tonneau runabout	4	1,250	Angle steel	Horizontal, amidships	2—Opposed	10	Planetary-gear, 2 speeds & R	78	56	8
Pope-Tribune	900	Runabout	2	——	Angle steel	Vertical, in front	2—Separate	——	Individ.-clutch, 3 speeds & R	82	56	—
Pope-Tribune	900	Side entrance	5	1,575		Vertical, in front	One	12	Individ.-clutch, 3 speeds & R	82	56	—
Autocar	900	Runabout	2	1,200	Armored wood	Horizontal, crosswise	2—Opposed	10-12	Sliding-gear, 3 speeds & R	70	52	8
Moline	900	Touring runabout	4	1,400	Angle steel	Horizontal, amidships	2—Opposed	12	Planetary-gear, 2 speeds & R	86	56	8
Rambler	850	Delivery wagon	—	1,400	Angle steel	Horizontal, amidships	One	7		81	56	8
Acme	800	Runabout	2	——		Vertical, in front	One	8		—	—	—
Glide	750	Runabout	2	1,300	Armored wood	Horizontal, amidships	One	8	Planetary-gear, 2 speeds & R	72	54	—
Mitchell	750	Plat. runabout	2	1,000	Pressed steel	Vertical, in front	2—Separate	9	Sliding-gear, 3 speeds & R	76	54	10
Oldsmobile	750	Touring runabout	2	——	Angle steel	Horizontal, amidships	One	——		76	55	7
Mitchell	750	Runabout	2	1,000	Pressed steel	Vertical, in front	2—Separate	9	Sliding-gear, 3 speeds & R	76	54	9
Rambler	750	Runabout	2	1,300	Angle steel	Horizontal, amidships	One	7	Planetary-gear, 2 speeds & R	81	56	8
Maxwell-Briscoe	700	Runabout	2	800	Armored wood	Horizontal, crosswise	2—Opposed	——		72	56	14
Oldsmobile	650	Runabout	2	1,200	Angle steel	Horizontal, amidships	One	7	Planetary-gear	66	55	8
Northern	650	Runabout	2	1,100	Angle steel	Horizontal, amidships	One	6¼	Planetary-gear, 2 speeds & R	72	56	10
Cameron	650	Runabout	2	1,450	Armored wood	Vertical, in front	3—Separate	——	Sliding-gear, 2 speeds & R	76	54	12
Rambler	650	Runabout	2	1,200	Angle steel	Horizontal, amidships	One	7	Planetary-gear, 2 speeds & R	78	56	8
Jackson	650	Runabout	2	1,050	Angle steel	Horizontal, amidships	One	7		72	56	—
Covert	650	Runabout	2	750	Angle steel	Vertical, in front	One	6½	Sliding-gear, 2 speeds & R	72	48	8
Reo	650	Runabout	2	900	Angle steel	Horizontal, amidships	One	8	Spur-planetary, 2 speeds & R	78	56	—
Pope-Tribune	500	Runabout	2	750	Angle steel	Vertical, in front	One	6	Sliding-gear, 2 speeds & R	65	54	—
Orient	375	Buckboard	2	500	Wood	Vertical, behind	1—Air cooled	4	Planet'y-gear, 2 sp'ds forward	106	48	8

Electric Motor Cars

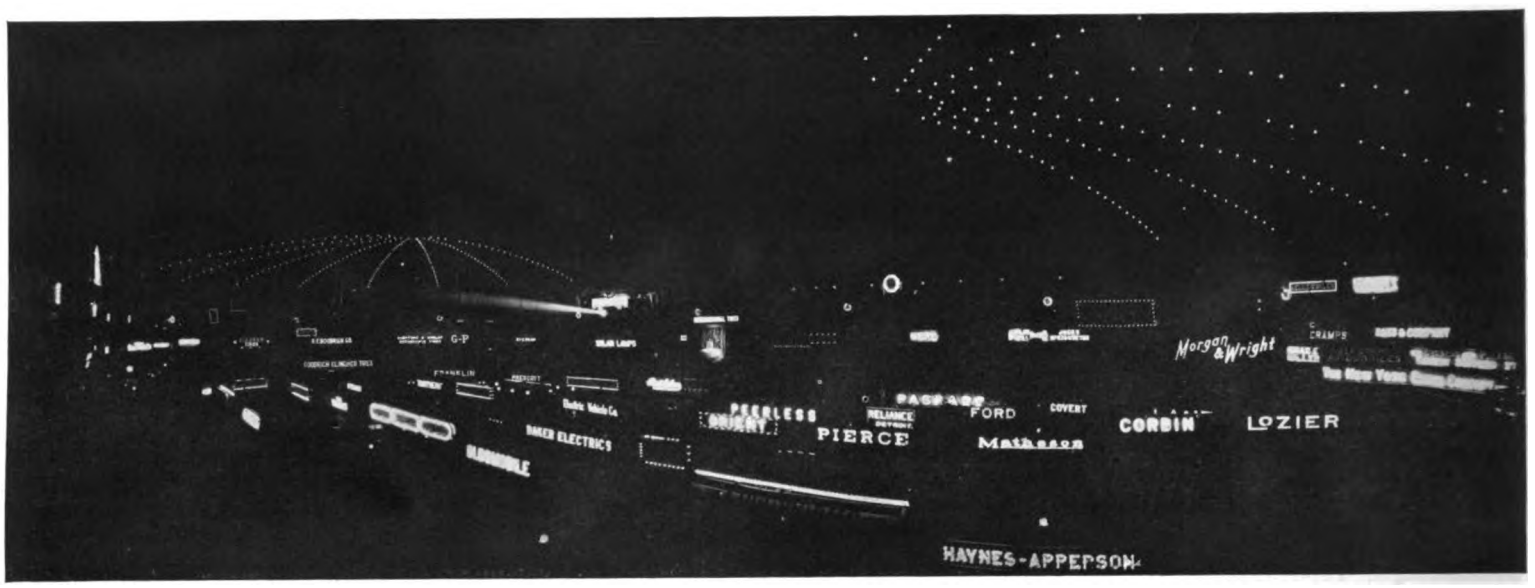
NAME	PRICE	BODY.	SEATS*	WT.	FRAME	MOTORS	BATTERY	MILEAGE	†	‡	¶
Fischer	7,000	Terrace stage	4	13,200	Channel steel	Gasoline electric, 20-h. p.	48 cells	Indefinite	111 in.	77 in.	11 in.
Fischer	6,500	London omnibus	4	13,200	Armored wood	Gasoline electric, 15-h. p.	48 cells	Indefinite	108 in.	77 in.	8 in.
Columbia	——	Commerc'l wagon.	—	10,000	I-section	2, 4½-h. p. each	44,252 amp. hrs.	25 miles	121 in.	70 in.	12 in.
Fischer	5,000	Five-ton truck	—	14,000	Armored wood	Gasoline electric, 15-h. p.	48 cells	Indefinite	111 in.	77 in.	11 in.
Fischer	3,750	Express wagon	—	7,000	Armored wood	2, 3-h. p. each	48 cells	Indefinite	103 in.	66 in.	11 in.
Columbia	——	Optional	6	5,040		2, 2¼-h. p. each	44,140 amp. hrs.	40 miles	82 in.	59 in.	5 in.
Columbia	——	Commerc'l wagon.	—	5,000	I-section	2, 2¼-h. p. each	42,168 amp. hrs.	35 miles	92 in.	64 in.	14 in.
Studebaker	1,750	Victoria phaeton	2	1,900	Armored wood	1, 3-h. p.	28,112 amp. hrs.	40 miles	68 in.	54 in.	9 in.
Synnestvedt	1,500	Stanhope	2	2,500	Angle steel	1, 8-h. p.	40,112 amp. hrs.	60 miles	75 in.	56 in.	
National	1,500	Stanhope	2	——	Armored wood	One	Optional	40 miles		54 in.	
Columbia	——	Runabout	2	1,360	Armored wood	1, 1¾-h. p.	20,120 amp. hrs.	40 miles	64 in.	48 in.	9 in.
Baker	850	Runabout	2	650	Tubular steel		12 cells	40 miles		52 in.	

Steam Motor Cars

NAME	PRICE	BODY	SEATS*	WT	FRAME	ENGINE	BOILER	H.P.	CONDENSER	†	‡	¶
Ormond	$3,000	Touring car	7	2,500	Pressed steel	Horizontal	Steel fire-tube	15	Tubular	108 in.	56 in.	24 in.
White	2,500	Touring car	5	2,200	Armored wood	Vertical, in front	Flash generator	15	Tubular	93 in.	55 in.	
Lane	2,250	Touring car	5	2,200	Riveted steel	Vertical, under seat		15	Flat tubes	97 in.	56 in.	10 in.
Grout	1,500	Touring car	5	1,750	Armored wood	Horizontal, amidships	Copper, wire-w'd		Tubular	86 in.	54 in.	9 in.
Prescott	800	Runabout	4	1,200	Tubular steel	Vertical, under seat	Tonkin dry-plate	7½		68 in.	54 in.	8 in.
Stanley	700	Runabout	2			Horizontal, under body	Copper, fire-tube					

*This refers to the maximum number of passengers the car will seat. †Wheel base—in inches. ‡Tread—in inches. ¶Clearance—height of underbody above road.

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PAST, PRESENT, AND FUTURE OF MOTORING

By Dave H. Morris

President Automobile Club of America.

It was on January 1, 1899, that George F. Chamberlain and Whitney Lyon sent out a circular calling for a meeting of those interested in motor cars. At that time there was no place in this city where motor cars could be stored or properly cared for. In response to this call a conference was held, preliminary organization was effected, and the Automobile Club of America was started.

At that time motorists were looked upon as enthusiasts or freaks, bent upon simple amusement. They were forbidden to enter the Park. As true pioneers, they had nature and man to fight. But the element of sport in motoring was not the real cohesive force which bound together the pioneers of motoring, or which binds those now in motoring; it is a greater principle, which underlies the advancement of the race; the problem of rapid, safe, and efficient transportation.

Among the first comprehensive efforts in this direction by the Club was the organization of the Show, to which the public could come and see what the motor car was, what it could do, and what it stood for. So skeptical were manufacturers and real estate people, that at one time it was almost impossible to get a place where the show could be held without individual personal endorsement by the governors of the Club. It was feared that there would not be enough motor cars to fill the house, or that the public would not take sufficient interest to come.

How different is everything now, when the demand for space is so great that in 1905 we have to have two shows, one practically devoted to the American industry, and another devoted to the importers. And how different is the first motor car from what it was in 1899, a little over five years ago.

The first club run, held November 5, 1899, was attended by barely three dozen machines, of which only fifteen were able to return to the starting point, although the route was from Thirty-third street to One Hundred and Thirtieth street and back. Compare that first attempt with the endurance runs to Boston, to Buffalo and to St. Louis, and see how the American machine developed in that short time.

How great has been the change in only a few years. Only five years ago the motor-car movement in this country was started, and there then were only fifty cars in all America. Note what progress we have made; from seven-mile runs, we now go a thousand to Boston, or Buffalo, or St. Louis, over the worst road in the world—the American road—and the way is not strewn with wrecks, but with broken records, and ninety-five per cent. of the cars arrive on schedule time.

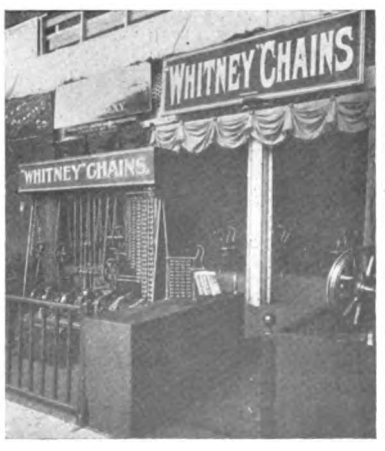
Thus, our history, though short, is brilliant with achievement. Typifying a new idea, we have had to overcome prejudices and obstacles at every step. At first we were looked upon merely as sporting enthusiasts—children with a new toy. Few realized that we represented the material embodiment of a new idea, a potent factor in the advancement of civilization. Few understood that the cohesive force binding us together is the vital principle of modern life. We are not simply in love with a new toy to speed for the joy of going fast, but we are striving to develop and harness, for the benefit of man, one of the potent forces in the new era of mechanical science. It is to this basic truth that we owe our existence, our phenomenal growth, and our splendid successes in the past, and those we shall achieve in the future.

Legislators, though still attacking the great industry in their mad zest for re-election, do it timidly, for they are beginning to feel the power of the new force, that new force of the thousands of voters who own, and are yet to own, motor cars. Behold the classic Vanderbilt Cup of last year, where, though not winners, our records were splendid and augur well for the Gordon Bennett contest next summer. Likewise, in various reliability contests and club runs, and in the unheralded achievements of many individual users, motoring makes its progress, overcoming material difficulties and rooted prejudices.

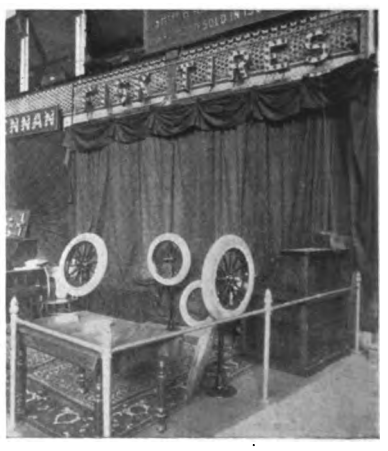
With the motor car there also is coming a development little less important than and quite inseparable from the development of the machine itself.

Good roads, laid out and built by engineers, within the next few years will commence to spread over the country—from city to city, from town to town, and even to remotest outposts of civilization. These roads will cost but a fraction of what is annually spent by the Federal Government for river and harbor improvement, and will be a benefit to all.

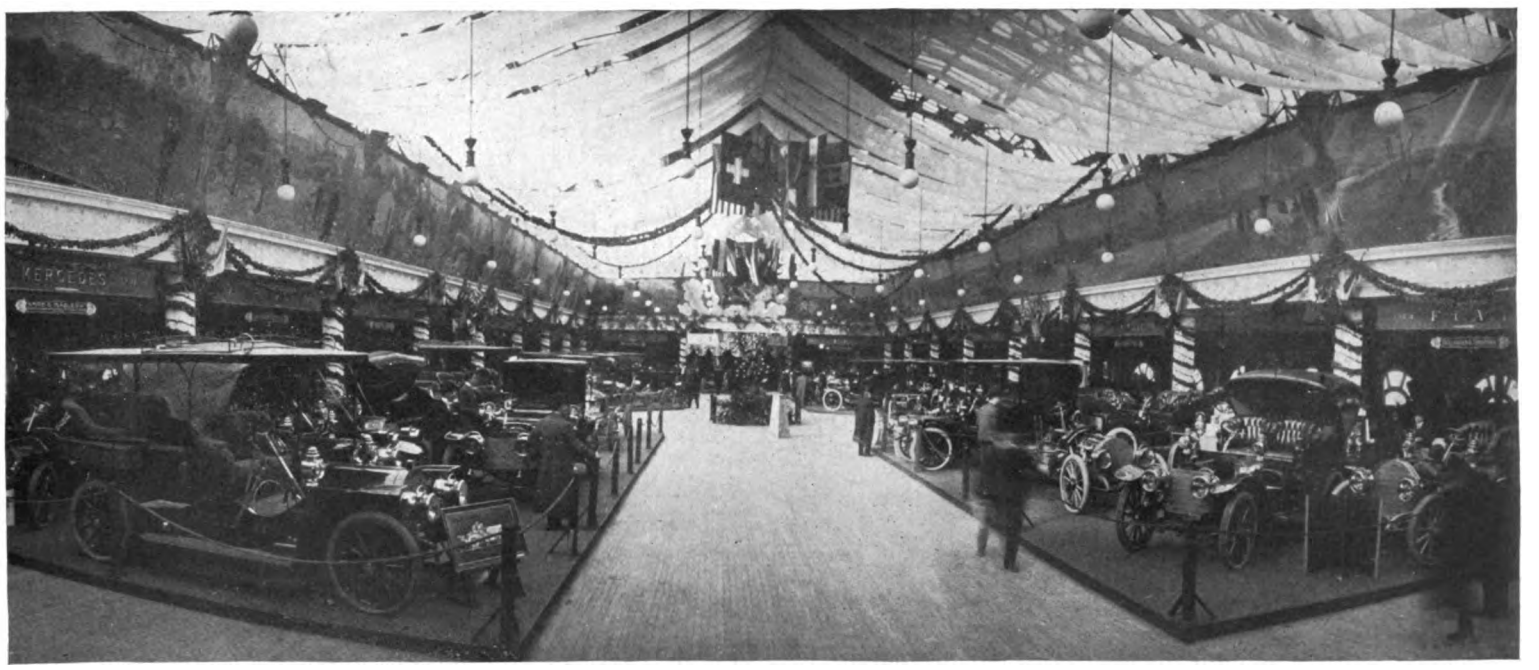








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AT THE IMPORTERS' SALON

By Igniter

At the Importers' Salon, it was very evident that European manufacturers of motor cars have settled down to a policy of progress along the lines of standardization and simplification. A close inspection of the details of the 1905 models of foreign firms makes it clear that, with a few exceptions, Europe leads the world in the production of cars de luxe, regardless of cost, leaving it to the American maker to give indisputably the best value for the least money.

European practice is more overwhelmingly than ever committed to the type of car it originated—the long chassis of pressed steel; an engine with four vertical cylinders under a bonnet in front; water cooling; a transmission embodying a conical clutch in the engine flywheel; sliding-gear change speed affording either three or four forward speeds and the reverse; and drive either by propeller shaft and bevel gear or by double chain.

Magneto ignition—about equally divided between the jump spark and the make-and-break systems, but requiring in its most approved forms neither batteries or spark coils—seems definitely to have established itself abroad at the expense of all other systems.

The compensating carbureter, in which the air admission is increased automatically as the suction increases, as by increased engine speed, is all but universal. The few exceptions arrive at practically an equivalent result through interconnection with the throttle lever, so that the act of giving the engines more mixture gives the carbureter more air.

Ball bearings, of non-adjustable and almost non-wearing forms, are more commonly applied than ever before, and are standard practice for wheels and axles, countershafts, gearshafts, and camshafts; are not rare on engine mainshafts; and, in the case of a few venturesome manufacturers, are applied even to the big ends of connecting rods.

The honeycomb radiator holds its own, and its tubular rivals have so far deferred to its vogue as to assume its outward appearance. Thermosyphon circulation of the cooling water has slightly progressed, having been discarded by none and adopted by a few, but the centrifugal pump still is most prevalent. The pressed-steel frame has conquered a couple of famous adherents to tubular steel, and the best-known user of the armored-wood frame now uses the wood as little more than an auxiliary to the steel armoring.

The sheet-metal pan, protecting the under sides of the power plants from dust and mud and, in several cases, serving also as a support to the engine and the transmission, now is standard practice, though last year only two or three makers saw the good of it.

Valves generally are mechanically operated, and in many cases the inlets and the exhausts are interchangeable with each other. The propeller-shaft, bevel-gear drive is applied to larger cars than ever before, but the double chain still rules with the largest. Cylinders are cast separate more commonly than before, but casting in pairs is by no means abandoned. In change-speed systems, four speeds ahead, instead of three, is becoming the rule, and, in many cars, it is possible to change from any speed to any other, without passing through the intermediates.

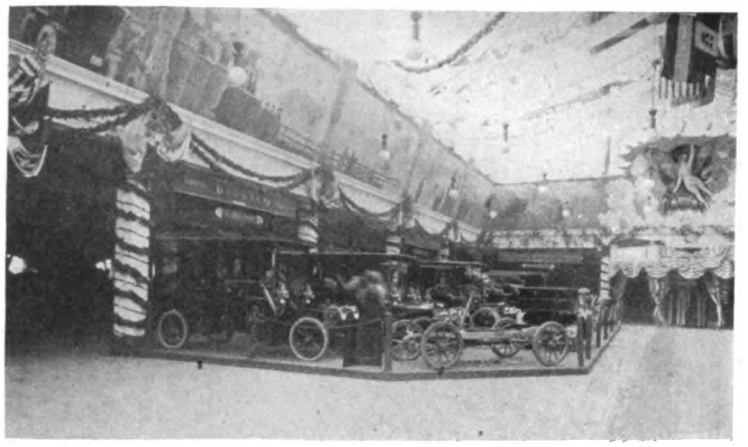
In marked contrast to the facts of previous years, the foreign cars for 1905 present no revolutionary departures from previous practice, and practically all the improvements, whether destined to become widely used or not, are improvements merely in detail. Among these, however, are many novelties deserving of the closest study by every enterprising motor-car manufacturer.

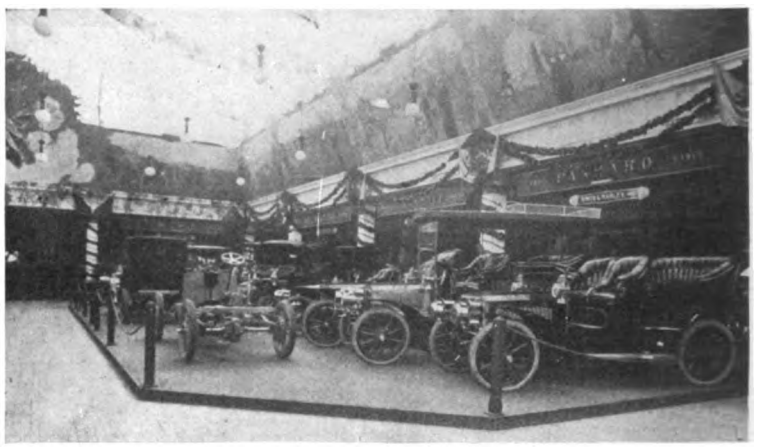
One novelty is the Mercedes pneumatic system of braking, inflating tires, and so forth. With this installation on a car, it simply is necessary to move the throttle lever to the stop position, or, if desired, to cut out the ignition, to insure a powerful and immediate, but smooth and gradual, application of the brakes. Some complication is entailed by the additional mechanism, but the worst that can happen if it becomes inoperative is to necessitate use of the ordinary equipment.



Another Mercedes innovation is the ratchet sprag on the differential, which is different from all previous ratchet sprags in that it is thrown automatically into action by any backward motion of the car, except when such backward motion is produced by proper applica-

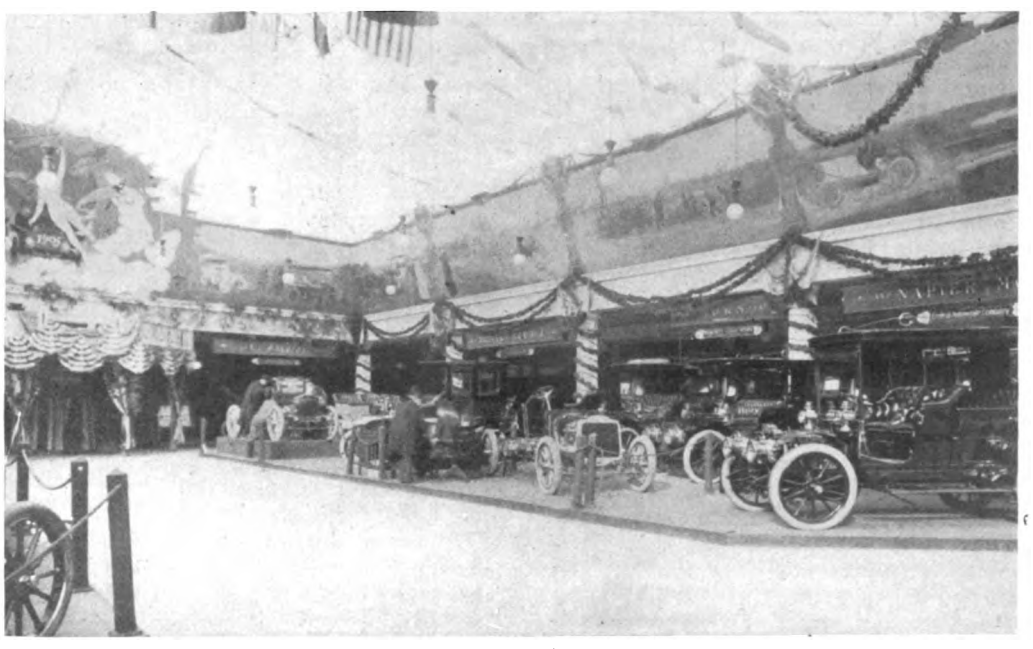
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tion of the reversing lever. A feature of interest on the C. G. & V. cars is the exceedingly large camshaft gears, which are driven directly by a gear on the engine mainshaft, without intermediate gearing. To permit of this, the gears on the two camshafts offset axially, so that they overlap each other.

For several years, by far a majority of all prominent manufacturers have placed the steering drag link in front of the front axle, the steering pivots being extended forwardly. This year, however, at least one manufacturer—the Hotchkiss firm—places the drag link behind the front axle, where it is less exposed to possible injury and consequent derangement of the steering from running into obstacles. This construction, of course, places the drag link in compression, making it necessary for it to be more heavily built than when it is in front, where the stresses upon it are chiefly tensile. It is argued, however, that even when a drag link is in front, it must be stiff enough to stand some compressive stress, as when the car is being brought from a very sharp curve to a straight course; and that therefore the heavier construction required by rearward placing is very slight.



A disk clutch consisting of steel disks, the surfaces of which are forced into frictional engagement, attracts the attention of the engineer to the 1905 Fiat.

Multiple steel disks likewise form the clutch in the new Panhard, and the fact that they run in oil makes their operation very smooth and their life exceedingly long. On the 1905 de Dietrich cars, an ingenious connection between the clutch and the throttle lever shuts the engine down whenever the clutch is disengaged or the brakes are applied. Racing of the engine thus is prevented absolutely, under all possible circumstances that could tend to cause it.

A combination of the pressed-steel frame with a tubular steel underframe is the unusual feature of the Richard-Brasier cars, and absolute dependence upon thermosyphon circulation constitutes another novelty.

An exceptionally radical departure from what is almost universally standard practice is the Mors plan of offsetting the cylinders on the crank case, so that they are not directly in line over the crankshaft, but are slightly to one side, thus bringing about a directer down thrust on the cranks during the explosion strokes.

A detail that seems to elicit generally favorable comment is the Leon Bollee scheme of so attaching the countershaft sprockets that a slight side play on the shaft ends is permitted them. The idea of this is to let the driving chains find their own adjustment regardless of any slight distortion, and particularly when the rear axle is forced slightly sidewise as the car swings at speed around a curve.

An additional convert to the one-piece frame idea is the Rochet-Schneider firm, whose product for 1905 show an interesting example of this construction.

The radical feature of the 1905 Peugeot is the carbureter, which is rendered compensating not by the usual method of adding to the air supply, but also by cutting down the quantity of fuel vapor. This is effected by a collar that rises with the suction and obstructs more or less of the holes in the ring atomizing jet.

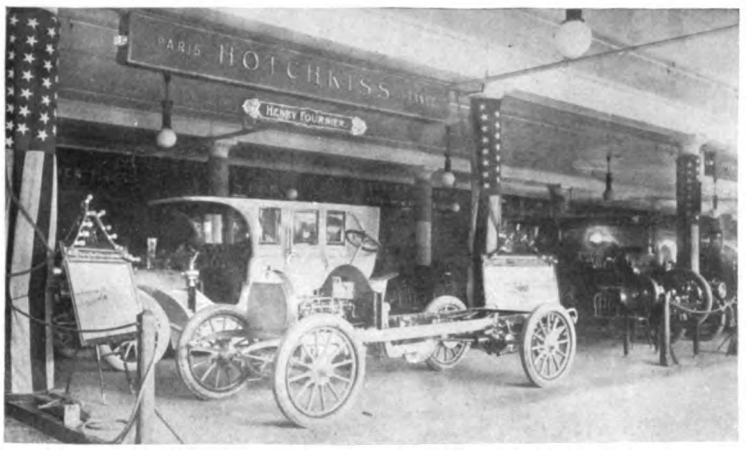
A power plant not carried by a false frame, but attached in such a manner that it can be removed from the car without difficulty, is a talking point of the 1905 Delahaye. The arms of the crank and gear cases extend clear to the side sills of the main frame, and the novelty, of course, is in the manner of attachment.

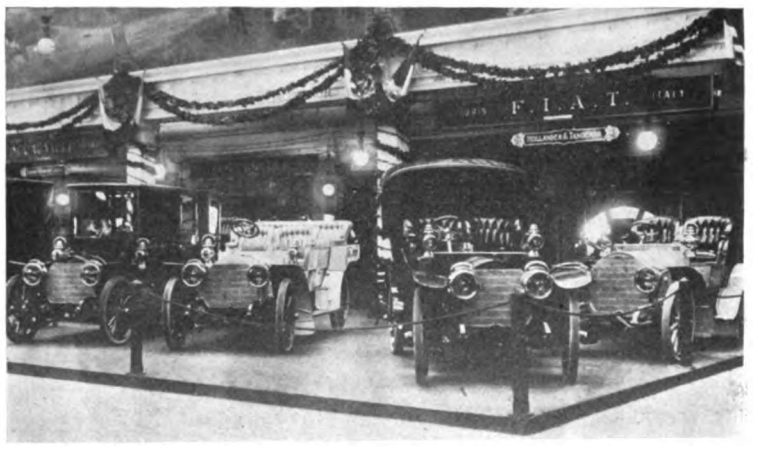
The Renault now appears with the pressed-steel frame, but still possesses many peculiarly-distinctive features. The radiator now is placed in front of the dash, and the air is drawn backward through its sides and forward through its center by a flywheel fan. By this arrangement, the motor is rendered most freely accessible, and a most vital and easily-deranged





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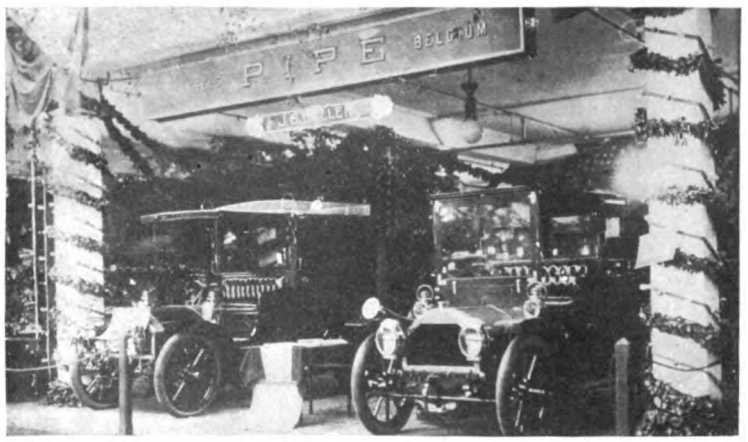
portion of the power plant is placed where it is little likely to be injured. Thermosyphon circulation is used, and a sheet-metal undercasing protects the mechanism from dust and mud.

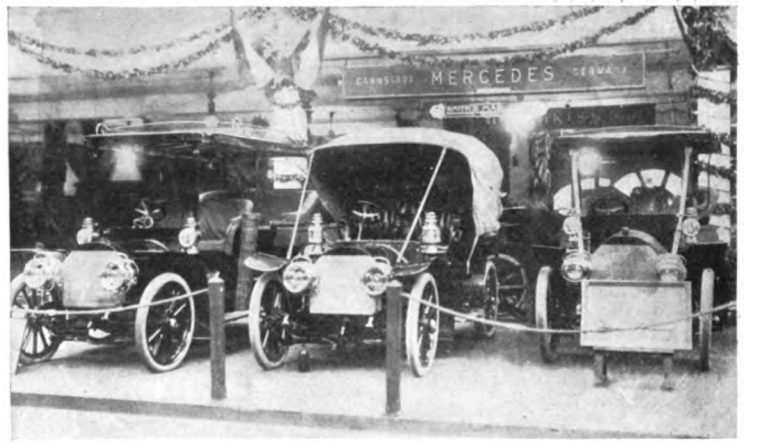
The sheet-metal dust apron, or pan, to protect the mechanism from dust and mud, is provided on the 1905 Martini, but the engine and transmission are not supported by it, being carried in the usual manner by the frame.

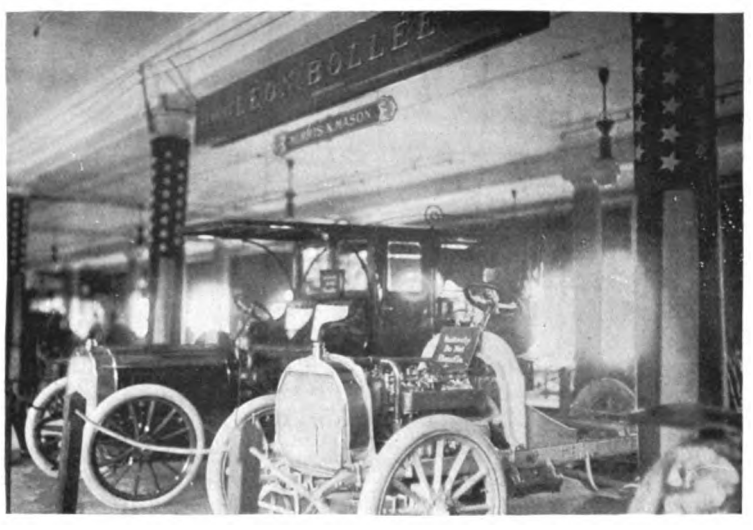
The 1905 Darracq has both jump-spark and make-and-break ignition. The one-piece frame is retained, but has been extended underneath so as to constitute a very perfect protection, as well as support, to the motor and the gear case. The clearance has been made 9¾ inches, which is a great improvement from the standpoint of the American user, to whom bad roads are the rule rather than the exception.

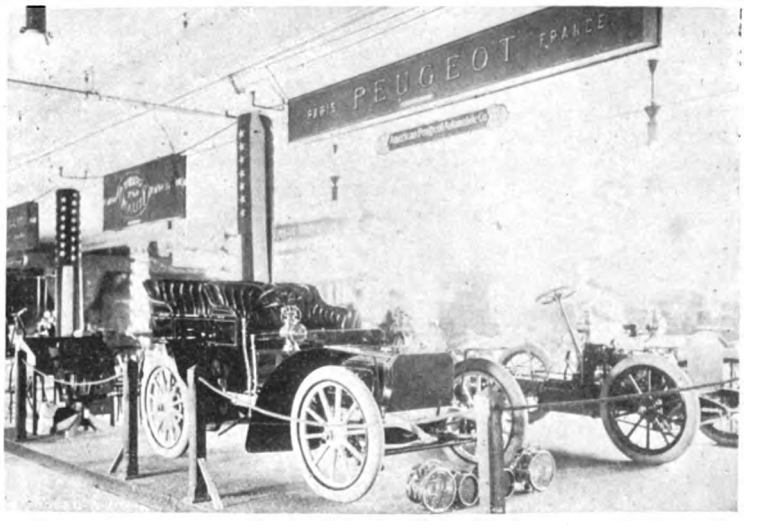
An ingenious solution of a question that has perplexed many manufacturers is that offered by the Decauville concern, which gives the option either of chain or of propeller-shaft drive to purchasers of its 1905 product. The well-known Decauville pan, protecting and supporting the power plant, has undergone practically no modification, and a high clearance appeals to those familiar with American roads. The engine is controlled by varying the time the inlet valve is kept open, without varying the amount of lift.

Like the Napier, the Minerve firm does not believe in the













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divided front seat and does not provide it in its stock bodies. The axles of this car are forged, and rectangular in shape, and the drive is by double chain. Lubrication is by gravity feed, the oil being fed mechanically, in measured quantities, into pipes that lead to all important bearings. Plain bearings are used throughout.

The Clement-Bayard cars for 1905 are among the few to retain the armored-wood frame, but they constitute an exception to the generality of wood frame practice in that the front of the frame is narrowed like a steel frame, to permit of short turning, despite long wheel bases.

The new cars of the Pipe Company present several variations from current practice. Both the inlet and exhaust valves are operated by rocking levers above the cylinders, and the exhaust valve is inverted. A helical-band clutch, similar to the Mercedes, is the regular equipment, but the Jenatzy magnetic clutch is fitted. if desired, and is declared to be satisfactory.

The leader of the Napier line for 1905 will continue to be a six-cylinder car, not materially different from the 1904 model. This car is of 18-35 horsepower, has a pressed-steel frame, and retains the peculiar Napier carbureter, regulated by the pressure of the cooling water. Both inlet and exhaust valves are mechanically operated, the inlets being above the exhausts, and actuated by rocking arms fulcrumed on top of the cylinders.

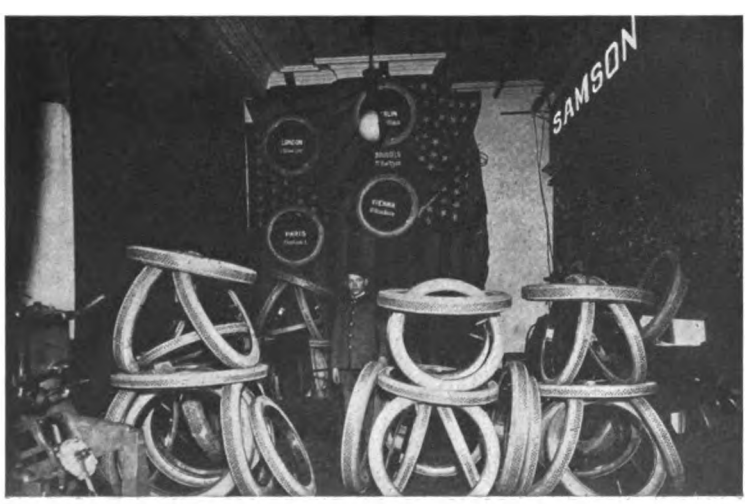
DETAILS OF FOREIGN GASOLINE MOTOR CARS

NAME.	PRICE.	BODY.	SEATS*.	WT.	FRAME.	ENGINE.	CYL'D'RS.	H.P.	TRANSMISSION	†	‡	¶
De Dietrich	$13,000	Coupe-Limousine	6	3,500	Armored wood	Vertical, in front	4—In pairs	60	Sliding gear, 4 speeds & R	107	—	—
Hotchkiss	12,000	Landaulet	6	2,500	pressed steel	Vertical, in front	4—In pairs	30-45	Sliding gear, 4 speeds & R	—	—	—
Panhard	11,700	To order		2,900	Armored wood	Vertical, in front	4—Steel	70	Sliding gear, 4 speeds & R	108	54	10
C. G. & V.	11,000	Limousine	8	2,700	Armored wood	Vertical, in front	Four	40	Sliding gear, 4 speeds & R	—	—	—
Decauville	10,500	Cabriolet	7	3,000	Pressed steel	Vertical, in front	4—In pairs	45-60	Sliding gear, 3 speeds & R	—	—	—
Rochet Schneider	10,000	Chassis only		2,100	One piece	Vertical, in front	4—In pairs	50	Sliding gear, 4 speeds & R	118	55	—
Napier	9,500	Chassis only		2,200	Pressed steel	Vertical, in front	6—In pairs	18-35	Sliding gear, 3 speeds & R	—	—	—
Mors	9,500	Chassis only		2,400	Pressed steel	Vertical, in front	Four	40-52	Sliding gear, 4 speeds & R	—	—	—
Martini	9,500	Side entrance	7	——	Pressed steel	Vertical, in front	4—In pairs	30-40	Sliding gear, 4 speeds & R	116	55	—
Peugeot	9,000	Side entrance	5	2,450	Pressed steel	Vertical, in front	Four	30-35	Sliding gear, 4 speeds & R	—	—	—
Mercedes	8,900	Side entrance	7	3,000	Pressed steel	Vertical, in front	4—In pairs	28-32	Sliding gear, 4 speeds & R	96	52	—
Clement-Bayard	8,750	Side entrance	7	2,500	Armored wood	Vertical, in front	4—Separate	45	Sliding gear, 3 speeds & R	—	—	—
Fiat	8,500	Side entrance	6	2,500	Pressed steel	Vertical, in front	4—In pairs	——	Sliding gear, 4 speeds & R	121	56	11
Darracq	8,000	Tulip phaeton	6	2,060	One piece	Vertical, in front	4—In pairs	30-35	Sliding gear, 3 speeds & R	100	54	10
Leon Bollee	8,000	Side entrance	5	2,200	Pressed steel	Vertical, in front	4—In pairs	20-32	Sliding gear	—	—	—
Pipe	7,800	Side entrance	5	2,500	Pressed steel	Vertical, in front	Four	20	Sliding gear, 4 speeds & R	—	—	—
Delahaye	7,500	Side entrance	5	2,600	Pressed steel	Vertical, in front	4—In pairs	28-32	Sliding gear, 4 speeds & R	—	—	—
Minerve	6,500	Side entrance	5	1,900	Pressed steel	Vertical, in front	Four	25	Sliding gear, 3 speeds & R	—	—	—
Richard-Brasier	5,700	Side entrance	5	2,000	Combination	Vertical, in front	4—In pairs	16-22	Sliding gear, 4 speeds & R	—	54	10
Hotchkiss	5,000	Chassis only		2,000	Pressed steel	Vertical, in front	4—In pairs	17-32	Sliding gear	—	—	—
Darracq	5,000	Tulip phaeton	6	1,760	One piece	Vertical, in front	4—In pairs	15-20	Sliding speed, 3 speeds & R	97	52	10
Renault	4,950	Chassis only		2,000	Pressed steel	Vertical, in front	4—In pairs	20-30	Sliding gear, 3 speeds & R	102	50	—
Panhard	3,550	To order		2,600	Armored wood	Vertical, in front	4—Separate	10	Sliding gear, 4 speeds & R	102	54	10

*This refers to the maximum number of passengers the car will seat. †Wheel base—in inches. ‡Tread—in inches. ¶Clearance—height of underbody above road.

A sheet-metal pan protects the mechanism, but does not support it. The cylinders are cast in pairs. The radiator is of the true honeycomb type, being composed of hexagonal tubes.

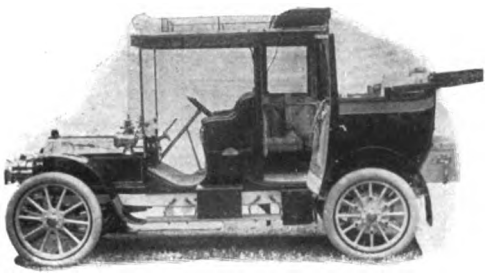
The Gobron-Brillie, which this year appears for the first time on the American market, is interesting because of its peculiar, vertical cylinders, each containing two opposed pistons. Despite the radicalness of this practice, the car is very successful, and is famous for its speed records.





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THE 1905 MOTOR CARS



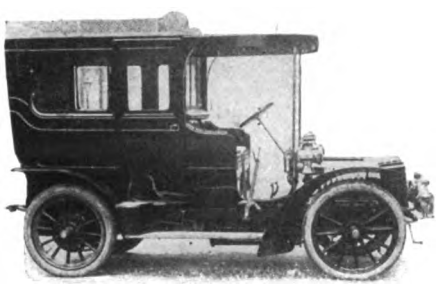
MARTINI



AMERICAN MERCEDES



POPE-TOLEDO



DE DIETRICH



NAPIER



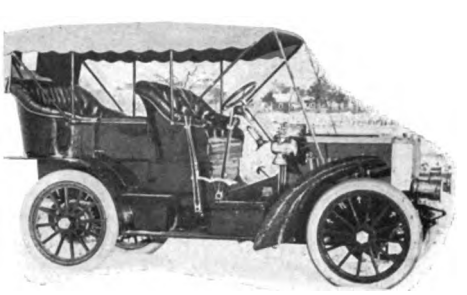
THOMAS



MERCEDES



PANHARD



MATHESON



FIAT



PIPE



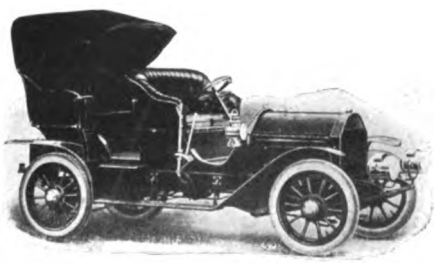
LOZIER (testing body).



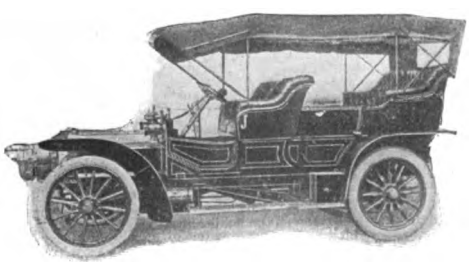
MORS



HOTCHKISS (chassis only).



STEARNS



LEON-BOLLEE



RICHARD-BRASIER



SMITH & MABLEY SIMPLEX

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STURTEVANT



GREAT ARROW



STANDARD



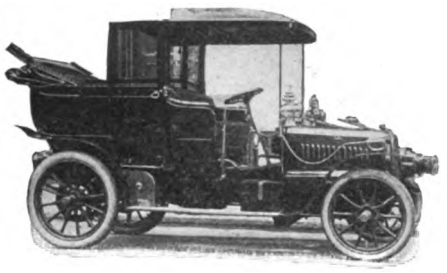
ROYAL TOURIST



STUDEBAKER



BERG



PANHARD



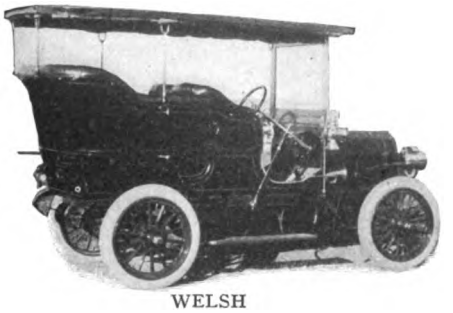
GREAT ARROW



FRANKLIN



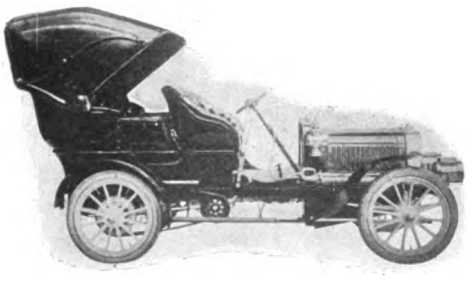
RENAULT



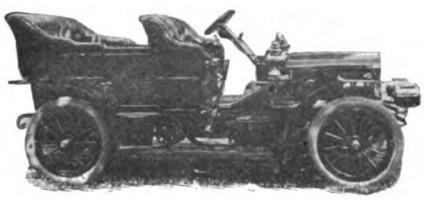
WELSH



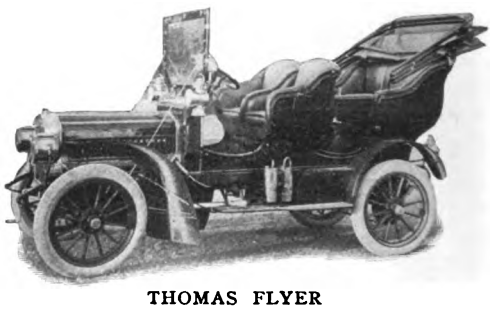
METEOR



POPE-TOLEDO



CORBIN



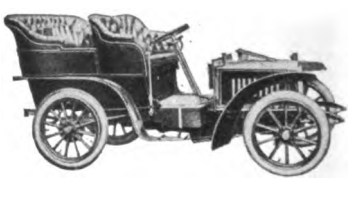
THOMAS FLYER



POPE-TOLEDO



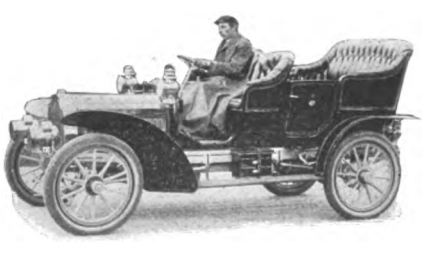
PACKARD



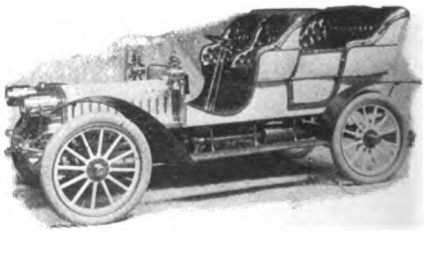
DARRACQ



LOCOMOBILE



PACKARD

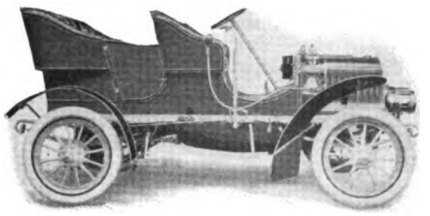


AUSTIN

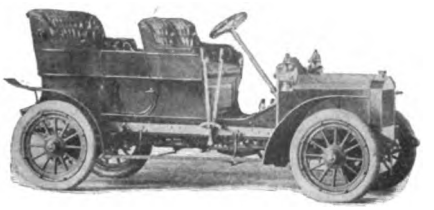
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WINTON



YALE



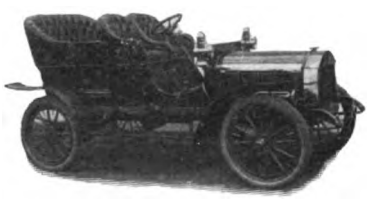
AUTOCAR



COLUMBIA.



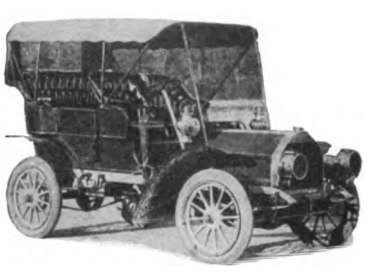
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MITCHELL



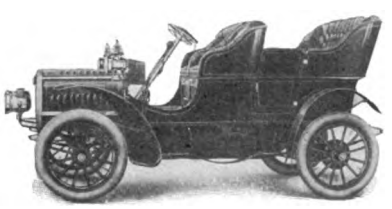
PEERLESS



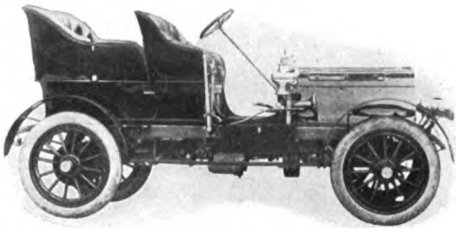
STEVENS-DURYEA



OLDSMOBILE



RAMBLER



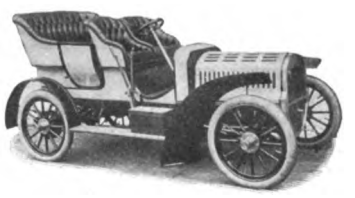
NATIONAL



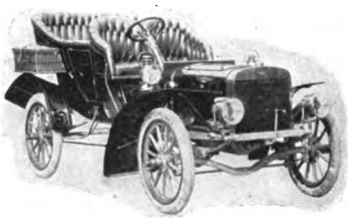
ACME



HAYNES



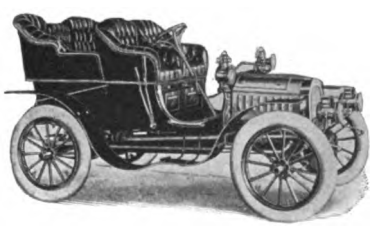
FRAYER-MILLER



FORD



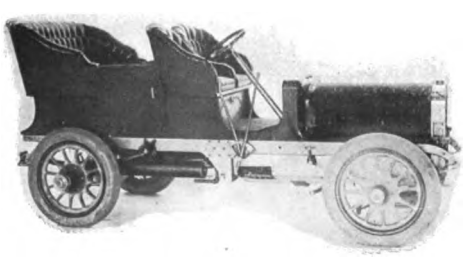
SPRINGER



PHELPS



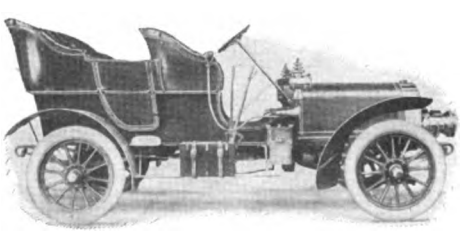
STODDARD-DAYTON



CADILLAC

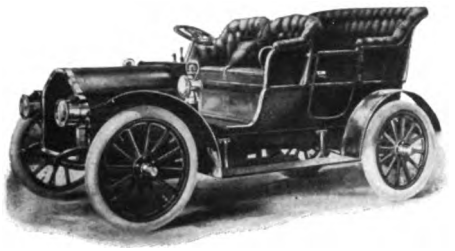


ADAMS



MODEL

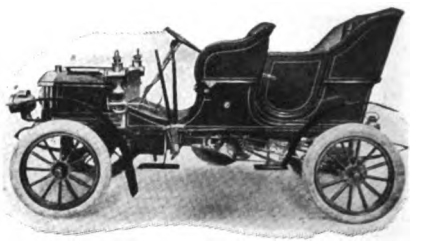
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ORIENT



DURYEA



SAINT LOUIS



KNOX



MAXWELL-BRISCOE



AUTOCAR



PUNGS-FINCH



POPE-TRIBUNE



FRANKLIN



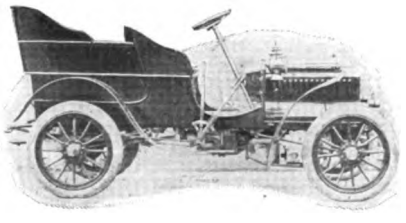
POPE-HARTFORD



KNOX



MICHIGAN



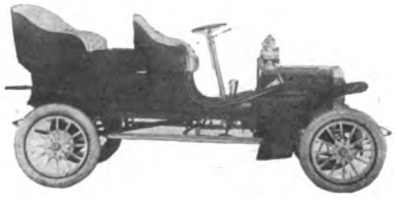
WOLVERINE



MITCHELL



REO



NORTHERN



MARION



ELMORE



LOGAN



DOLSON

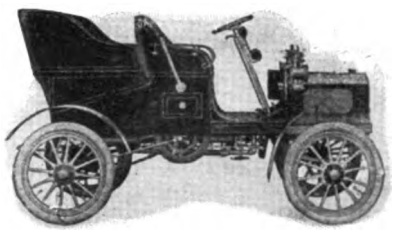


PIERCE-RACINE

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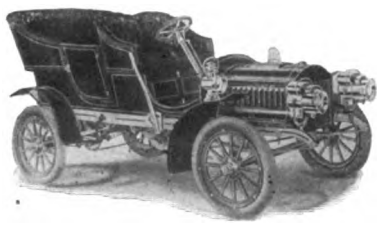
WAYNE



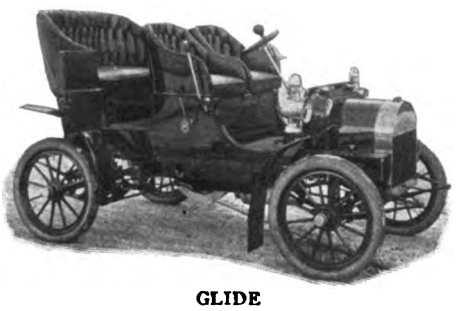
QUEEN



KNOX



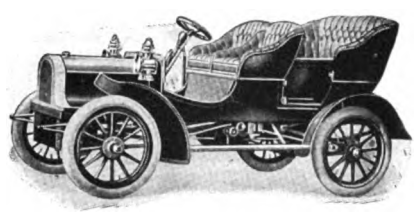
WAYNE



GLIDE



AUTOCAR



BUICK



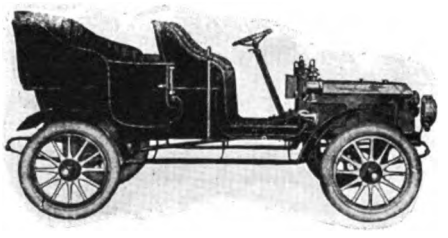
FRANKLIN



MITCHELL



JACKSON



QUEEN



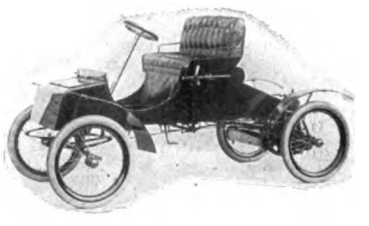
REO



ELMORE



NORTHERN



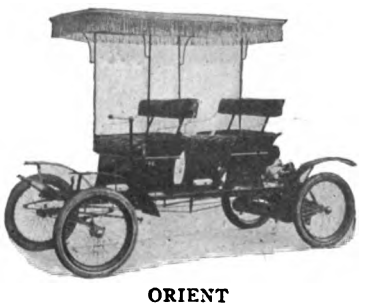
ORIENT



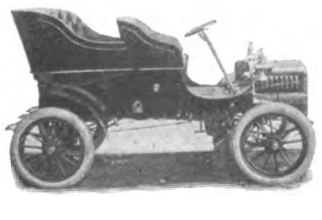
FORD



MAXWELL-BRISCOE



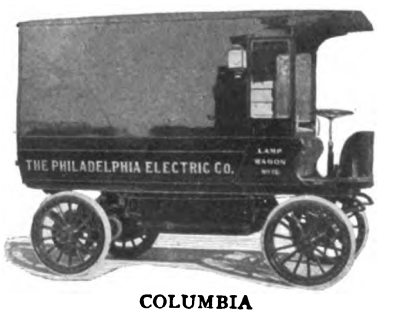
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MICHIGAN

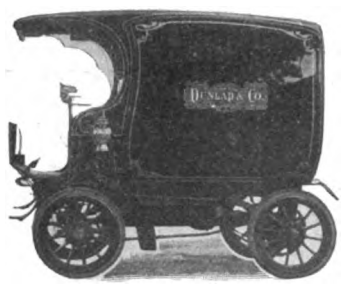


NORTHERN



COLUMBIA

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KNOX



POPE-WAVERLEY



GROUT



OLDS



POPE-WAVERLEY



ORMOND



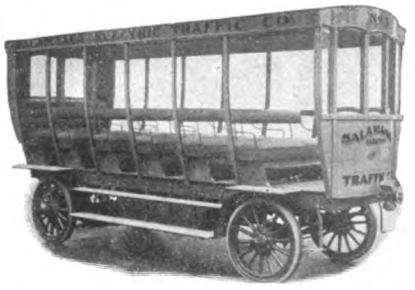
FISCHER (sightseeing stage)



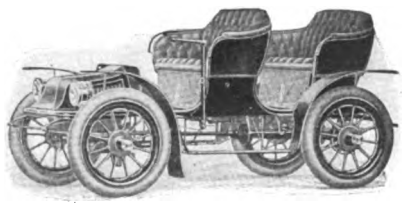
STUDEBAKER



WHITE



AUTO-CAR EQUIPMENT



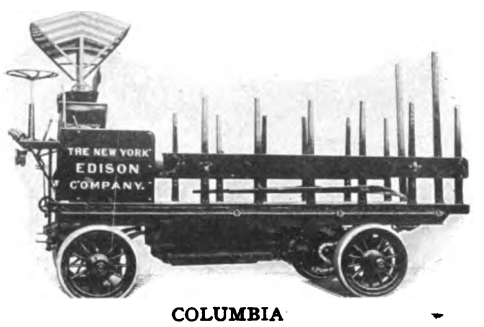
BAKER SURREY



LANE



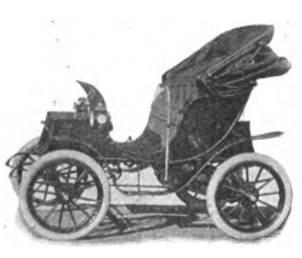
FISCHER (double-deck stage)



COLUMBIA



WHITE



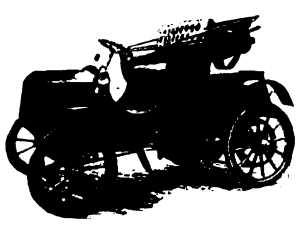
COLUMBIA



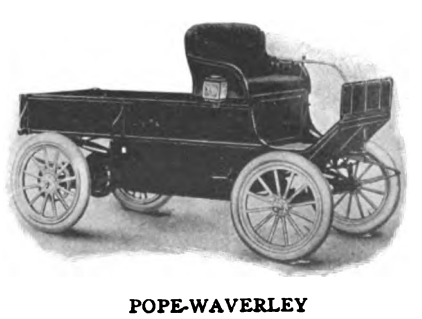
FISCHER



GROUT



SYNNESTVEDT



POPE-WAVERLEY



PRESCOTT

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About the first thing a stranger asks who has just landed in Portland, is to be shown the snow-capped mountains that he has heard so much about before reaching this beautiful country. He is taken either to City Park, or, better still, to Portland Heights, a lovely car ride which lands you high above the city, with a panoramic view that cannot be surpassed in any country.

Just below you is the city, through the centre of which passes the Willamette river. winding its way along to the mighty Columbia. Here you see vessels from all nations of the globe. Beyond this is East Portland, the residence portion of the city, which has spread out until it joins the many beautiful suburban additions. Beyond this are the thrifty farms, running back to the evergreen hills which gradually slope up to the peaks of perpetual snow. Surrounded by mountains, in the distance, Portland is a summer and winter resort every month in the year—a natural park, with green trees and grasses and blooming flowers in the open yard at Christmas time.

Nowhere in the entire world has Nature been more lavish with her handiwork and scattered more picturesque scenes. The city is encompassed with a magnificent and imperishable art gallery of verdure-clad and lofty mountains, whose snow-capped peaks defy the sun's warmest rays, and look down upon fertile valleys that fairly groan with their weight of golden grain and fruit. Journey to Switzerland, stand on some mountain and gaze over a landscape of lake, forest, Alpine crag and snow-caps; then return and look once more from some Portland height, letting the eye grasp at a single sweep the panorama of river and valley, mountain, field and forest, the beauties of the sky as the sun drops behind the western mountains into the bosom of the ocean, and the memory of Swiss grandeur will lose by the comparison with "Portland—the Beautiful, the Pearl of the Pacific. It well deserves the clean-cut title.

The healthfulness of the city is as remarkable as the scenery in and around it is beautiful. Its water supply comes from the everlasting glaciers of Mount Hood, piped for a distance of over 30 miles, and always is soft, cold, clear as a crystal, and unsurpassable in purity. This, and the perfect natural drainage of its location, doubtless is responsible for Portland's having one of the lowest death rates of any city of the country.

The city is well built and metropolitan in appearance. With miles and miles of splendidly paved and well-lighted streets, 120 miles of electric street railway, including a first-class suburban service, handsome public and private buildings—custom house, chamber of commerce, court house, hotels, theatres, schools, churches, hospitals, mercantile blocks and residences—it bears comparison, in every municipal aspect, with the most habitable of Eastern cities.

Portland's growth alone is sufficient proof of the appeal it makes to all who become acquainted with its attractions. In 1890 it had a population of 46,385, in 1900 it had 90,426, and it now is growing at a rate which, if kept up, will carry it to the 200,000 mark in 1905. It is one of the most substantial cities west of the Rock Mountains and stands near the top of the list in the entire country. Few cities are wealthier in proportion to population.

With characteristic civic enterprise, the citizens of Portland now are planning to celebrate fittingly the centennial of the wonderful Lewis and Clark expedition across the continent, both the state and city having set aside large sums of money for this purpose, and many other states having promised appropriations for the exposition, which is to be held during 1905.

Of the five peaks that border Portland's horizon, the one that is dearest to all Oregonians is majestic old Mt. Hood, 12,000 feet above the sea. It doesn't look far from where we



PORTLAND, ORE., FROM THE HEIGHTS, WITH MAJESTIC MOUNT HOOD IN THE BACKGROUND

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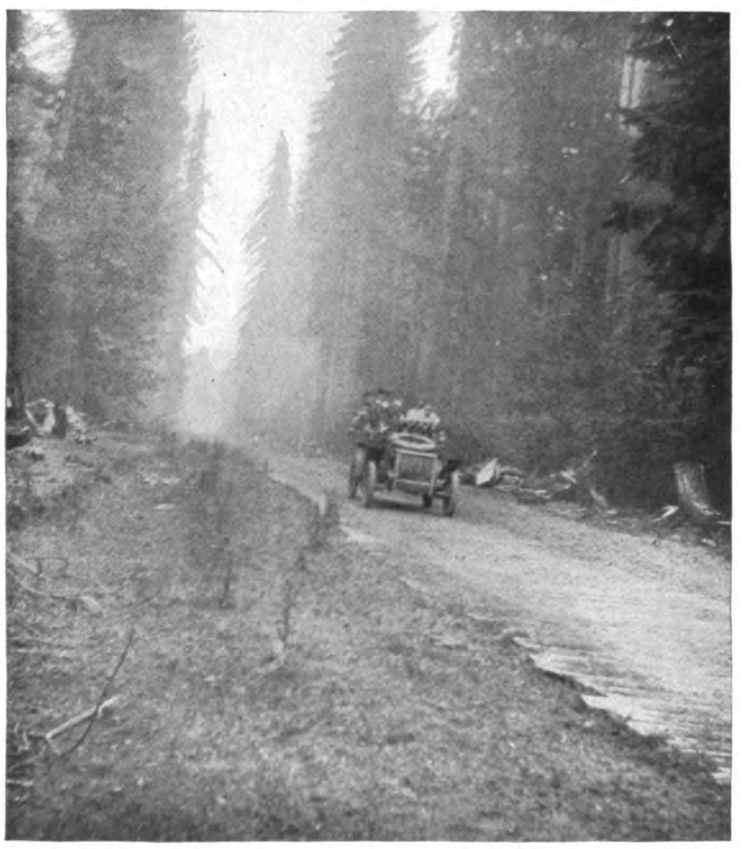
TANKING UP AT "PLEASANT HOME" FOR THE HARD TASK THAT STRETCHED OUT TOWARDS MOUNT HOOD

are standing, you would say probably 15 or 20 miles, but the odometers of our motor cars said 60, which is said to be correct by the surveyors.

Many have attempted this trip, but only one had succeeded previous to us, and that was Mr. Kelly, who, with a Stanhope, succeeded in making it alone last year. But it was quite an undertaking with a touring car loaded to its full capacity.

However, we started one Wednesday morning last August, and were soon winding our way among the many farms, leaving the city and its noise far behind.

Mr. Kelly, who lives out some distance, was to meet us at Pleasant Home. There we found him and his family, and he even had a whole camping outfit, grub, and cooking utensils. I had five passengers, myself included, and our luggage, and we both carried five gallons of extra fuel so we had no room to spare. We made a tandem drive from Portland to Sandy, where we took on our extra supply of gasoline, as this was our last chance. It was a fine ride over very good plank roads, just 29 miles out, and about the end of our good roads, as from here on they are up and down, very dusty or have deep sand; still there were places through the tall



TEN MILES OF PLANK ROAD—THE HAZE IS THE SMOKE FROM THE HEAVY FOREST FIRES



THROUGH THE "TALL TIMBERS"—OBSERVE THE MOSS ON THE TREES AND THE LUXURIANT FERN GROWTHS

pines that the roads were beautiful, and the route picturesque.

Our next stop was Salmon P. O., where is located the U. S. Government salmon hatchery, which is quite interesting to see. This is the last post-office and about the last of civilization. The mail is taken from here to the people at Mt. Hood by anyone who happens to be going that way. It was here that we secured a picture of one of the few Indian braves who once roamed the country and made it interesting for the immigrants who had to travel over what at that time was the Indian trail. This is known as the "Barlow Trail," and the early settlers were compelled to travel overland by this trail or come down the Columbia river by boat, which meant a ride over the rapids at the Cascades that quite often resulted in a spill and the loss of their effects—a terrible catastrophe to them, as freight had to come around the Horn.

The Indians gather at the hatchery each year and dry the fish that are thrown out and use them for their winter's food. We had quite a time coaxing them to stand for their pictures, but fifty cents soon brought them to time.

From here to Toll Gate the roads were not at all bad, and we passed over some beautiful streams of water, but rather shaky bridges. We soon arrived at the Toll Gate, and the

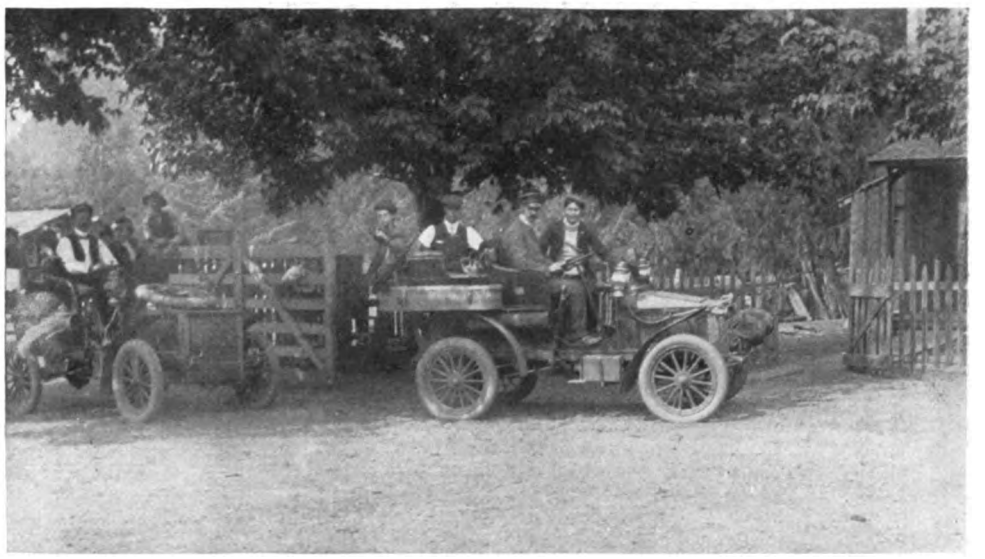


SPECIMEN GROUP OF INDIANS WHO CONGREGATE DAILY AT THE U. S. HATCHERY AND GATHER UP THE SURPLUS FISH

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keeper's wife was good enough to furnish us hot coffee, while Mrs. Kelly brought forth an elegant lunch of cold chicken which soon faded from sight. After we had satisfied the inner man, we proceeded to trim up the cars, and, as my wife has often remarked when something goes wrong, "Never mind, dear, the worst is yet to come," we knew the worst was coming, but hardly expected what did come. However, we had come prepared, as we had axes, hatchets, and shovels.

We were taxed the small sum of $2.10 per for the privilege of working the roads, as you can see by the picture, where my friend, Dr. Yates, had to grub stumps while the rest of the party rolled the loose rocks out of the way. I succeeded twice in getting hung on the differential case with the wheels spinning around in the air, when help would come and shove her off, and we would proceed. At one place we almost had to build a new road around the point of a hill to get past some boulders, the gradometer ranging as high as 30 per cent., and this is where my steam pump that I had just put on accomplished some fine work, as in the whole trip of 120 miles I was not compelled once to resort to the hand pump. But this was



AT THE TOLL-GATE—OUR "WHITES" WERE THE FIRST MOTOR CARS TO PATRONIZE THE ROAD TOWARDS MT. HOOD.



THIS IS THE ROAD FOR THE PRIVILEGE OF RIDING OVER WHICH WE PAID 12½ CENTS FOR EVERY TRYING MILE

the kind of road we had paid 12½ cents a mile to travel over.

The noted Laurel Hill, where the pioneers had to unhitch their horses and let the wagons down by ropes, could be made one of the grandest drives on the coast at a very small expense, and we look forward to the time when the Legislature of Oregon will take it in hand and make it a state road.

When we arrived at the Government Camp we were heartily cheered by the campers who congregate here each year and form a beautiful white city of tents. They come from both sides of the range for their summer outing. The place is simply superb. It is from here that the start is made for that exhilarating climb, with a mountain of interest to look at, with its fields of perpetual snow, and crevasses no human eyes has ever measured. All around you are streams abounding in speckled beauties; in some places these streams are as clear and smooth as a mirror, and in others they are a roaring torrent of white foam as they rush down to join the larger streams below. The timber-covered hills are one mass of huckleberries, and bear, deer, and elk are plentiful. Just think, with a small expenditure in road building, all this could be reached in a forenoon's drive from a busy city.

We were soon comfortably situated at a hotel, the only building there, and the next morning we started and climbed to the snow fields. We found it a hard old climb over the ashes and boulders of lava, and returned a tired and hungry crowd, to be rested with a good dinner of fried trout and fresh venison.

That night we listened to Mr. Yomkum, the guide, and his thrilling stories of some of his sport in the long winter months on skis. This promises to be interesting to us as soon as a railroad is built, for it would be great sport to go skiing to Mt. Hood, as it is very seldom we ever have snow in Portland.

Friday morning at 10:30 o'clock we started for Portland, and met quite a number of teams on Laurel Hill, but there was not the least trouble, and the settlers were all glad to see us, as our trip may mean a start for better roads. The only excitement was just after we left the Toll Gate, where we encountered a fierce forest fire, and after a hot ride, expecting a tree to fall on us at any moment and cut off our retreat, we rushed through and were thankful to feel the cool, fresh air on the other side. The Government employs forest rangers to patrol this part of the country and look out for fires, but they were helpless with this one, and it cost the farmer quite a heavy fine.

How important it is that the Government should protect the Oregon forests can be judged from the fact that the reports of United States officials show them to contain two hundred and twenty-five billion feet of lumber—enough to make a solid cube half a mile square. Of this, 150,000,000,000 feet is estimated to consist of red fir and 40,000,000,000 feet of yellow pine, the remainder consisting of other species of conifers —mainly cedar, hemlock and spruce. The United States has reserved areas amounting to 7,271 square miles, nearly all of



ZIG-ZAG CREEK WHOSE BRIDGE IS TYPICAL OF THE KIND THAT WE CROSSED OFTEN

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DR. YATES WANTED AN OUTING, AND SO WE GAVE HIM A CHANCE TO EARN HIS MILEAGE

which are comprised in the Cascade range. The reserves are estimated to contain about 55,000,000,000 feet.

The Oregon forests contain about ninety different trees and shrubs, including numerous varieties of fir, spruce, larch, pine, cedar, hemlock, ash, maple, alder, cherry, juniper, cypress, mountain mahogany and cottonwood. The most valuable of these are the red, yellow and silver firs. The silver fir makes fine-grained white lumber, very smooth, strong and durable. The red and yellow firs—the latter widely known as "Oregon pine"—rival pine in lightness, and oak in strength and durability. They have nearly twice the strength, under compressive stresses, of Eastern oak, and nearly three times that of Eastern pine. Ship-builders have learned of the wonderful durability of these firs and the sails of commerce of almost every nation are flung to the breeze from them.

Our trip completed, we arrived home at 6 o'clock, tired yet jubilant, to think we had made the daring trip without an accident, and old "Samanthy" as good as ever.

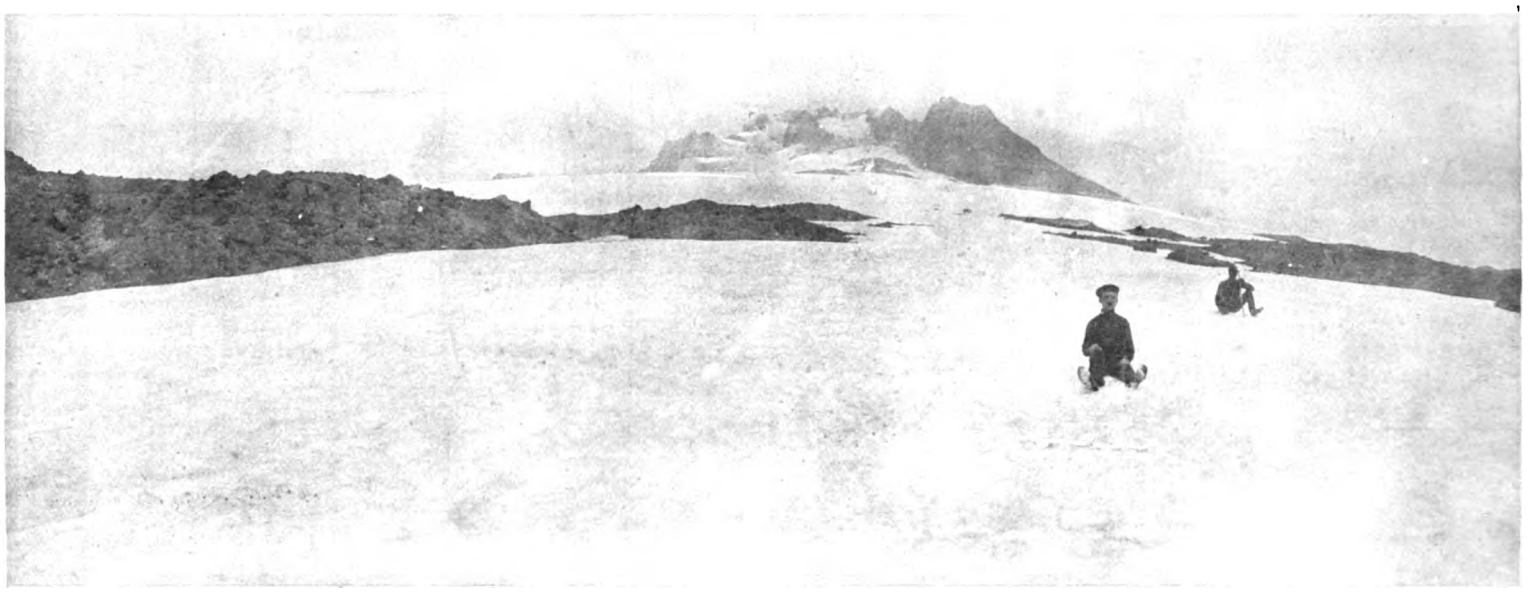
ROAD MOTOR AND COUNTRY

The conquest of the country by the motor car is only just beginning. To the rural inhabitants at first thought it is scarcely anything more than a tolerable substitute for the horse-drawn vehicle on city streets, or at most a roving free-booter of the suburban boulevards. A closer acquaintance with what is being accomplished in the name of the road motor to-day—and particularly with that which is confidently promised for to-morrow—must thoroughly revise that view.

The commonly accepted idea of the motor car as something of an evolution of the bicycle, especially calculated to bring the suburbs and the country to larger numbers of city people, is all right so far as it goes. With equal truth—and of no less importance—is it a means of bringing the advantages of the city to larger numbers of people living in the suburbs and in the country. Here, at least, its mission is two-fold. But one feels that either definition might have been penciled on the reverse side of a railroad commutation ticket to or from daily business, with the fancy of the traveler not wholly free from his environment at the time. This is not even the largest single part of the self-propelled vehicle's practical service to the country.

But the choice of all possible routes between home and business, or merely between the city and the suburbs and the country, would be only a small part of the motor car's real mission. The well-to-do dweller in the country, with a choice of vehicles at his command, avails himself of one or at least a few road-lines to and from the city, in comparison with the many that radiate in all directions from his home. The latter, not the former, is the centre of his individual riding district. So far out, the main thoroughfares may be considered not inappropriately as only a part of one's larger commutation facilities; beyond that they become a part also of one's pleasure plans.

The physical and enduring basis of the motor car in country life is utility, to which even the claims put forth by its friends as a means of pleasure travel and recreation must ultimately be secondary. It is to this vast field that the leading American manufacturers are addresing themselves largely to-day, through designs and forms of construction specially suited to all-around use. Sales in the city gravitate to them, but they must not only fight earnestly for, but show an undeniable superiority over, established means of transportation in order to win over the larger support of the country. The higher prices of hay and grain, and the largely increased cost of room lay heavy odds against horse keeping in the cities; but these conditions do not hold equally in the country, and the advantages of the road motor over the horse and carriage must be proven in very definite terms to work any widespread change.



IT WAS DECIDEDLY EASIER TO COME DOWN THAN IT WAS TO GO UP



THE GLISTENING ICE AT THIS PLACE HAD A SOLID DEPTH OF FULLY SIXTY FEET

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THE ARTISTIC MINIATURE TEMPLE OF FAME AT ARLINGTON

TO THE NATIONAL CITY OF THE DEAD

By C. H. Claudy

From a patriotic standpoint, the most important motor run to be made from Washington, D. C., is that to Mt. Vernon, described in the December issue of MOTOR. But from the standpoint of comfort, the Mt. Vernon run must give way to that to Arlington and Fort Myer, nor are these two places devoid of historic and patriotic interest, particularly Arlington, once the Lee home, now government property, and the burying ground for the Nation's dead.

To go to Arlington from Washington, find "M" street and follow it west to Thirty-sixth street, or as far as it goes. If down-town, run out Pennsylvania avenue, past the Treasury, White House, and State, War, and Navy departments, until "M" street is reached at Twenty-eighth. If up-town, try Vermont, Rhode Island, or New Hampshire avenue, until you get to "M" street; then due west, as stated. Arrived at Thirty-sixth street, to the immediate left is a bridge, called Aqueduct bridge, for the reason that it does not carry water! Crossing this, you will, if the weather be damp, have a few rods of as fine mud as you could wish for, and will have to steer straight or take chances of skidding. If the weather be dry, there will be ruts, big enough to cause discomfort to even the biggest tires, for this short stretch is patronized by broad-tired brick carts. However, it is but a short distance until the roads fork, and the one to the right will speedily harden to a very fair road; excellent, considering the State it is in. It is a pretty road, too, especially in the fall, when the many-colored leaves of the numerous varieties of trees to be seen along it, make a melody of color worth seeing, even by the satiated autoist. The chances are, however, unless your machine is of the make which thinks nothing of the steepest hills, that you will be busily engaged in "jockeying" the grade, rather than admiring the scenery. For it is a



ARLINGTON MANSION, ONCE THE HOME OF THE CELEBRATED LEE FAMILY

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ARLINGTON IS PICTURESQUE IN SNOW AND ICE



AMPHITHEATRE WHERE MEMORIAL DAY SERVICES ARE HELD

pretty steep pull of about a mile and a half before you finally get to the top of the plateau on which you will find Arlington and the Fort. Coming this way, you will pass through the grounds of the Army post called Fort Myer, for the same reason that the bridge is misnamed—because there isn't any fort—but you will have a better rounded trip if you do not stop here until coming back. And you may speed your machine as fast as you dare through these drives and no one will stop you if you do no damage. The Signal Corps headquarters, located in this post, has several motor cars, and the people are used to seeing them run at any old speed at all hours of the day and night; sometimes on business, sometimes on pleasure bent. But as there are a number of sharp and sudden turns in this drive, don't try to break your engine and your neck beating the record.

Coming through the post, the immense parade ground and the gate to the Arlington grounds come simultaneously into view. And now you must slow up, not only on account of the regulation, but out of respect for those who fought, bled, and died for their country and who are quietly sleeping the last long sleep beneath the ground over which you travel slowly and decorously toward the Mansion. For the Mansion is, of course, the first thing to see, and here I shall call on a much better picture painter than is my pen—my camera.

It is worth looking at, this home of the Lees, both from an architectural standpoint and from that of historic interest. If you can read a bit of genealogy, you will learn that the grounds of Arlington, early in the eighteenth century, were bought by one John Custis for $50,000. The estate passed to the son, Daniel, and his wife, Martha Dandridge, and then to Daniel's son, John, whose mother inherited other property, and who later married George Washington and went to live at the Mt. Vernon home. The Washingtons cared for the estate until John Parke Custis became of age. He married a Calvert, served with Washington, and died in 1781, leaving two children to be adopted by the Washingtons, who loved them as their own. The children were George Washington Parke Custis and Nellie Custis, who married the Virginian "Lewis" at the same time her brother inherited Arlington. George Custis erected the present mansion in 1803, and shortly after married Mary Lee Fitzhugh, a Randolph. Their only surviving child, Mary, married Robert E. Lee, son of famous "Lighthorse Harry" Lee, and the now famous mansion became their home. But not for long. When the Civil War broke out, Lee followed Virginia, and the federal troops at once seized the estate, which became the property of the Government, with everything upon it of historical value. Arlington was twice sold to the Government, the first time for $23,000, on plea of non-payment of taxes, but on suit by George Washington Custis Lee was given over to him, only to be immediately resold to the Government for $150,000, in 1884. This may make dry reading, but in a paragraph I have covered family history which means much to the country, and sketched, baldly, romances enough to fill a library, and all centering around this massive, dignified, and impressive mansion, whose white pillars face the broad Potomac even as those of Mt. Vernon do.

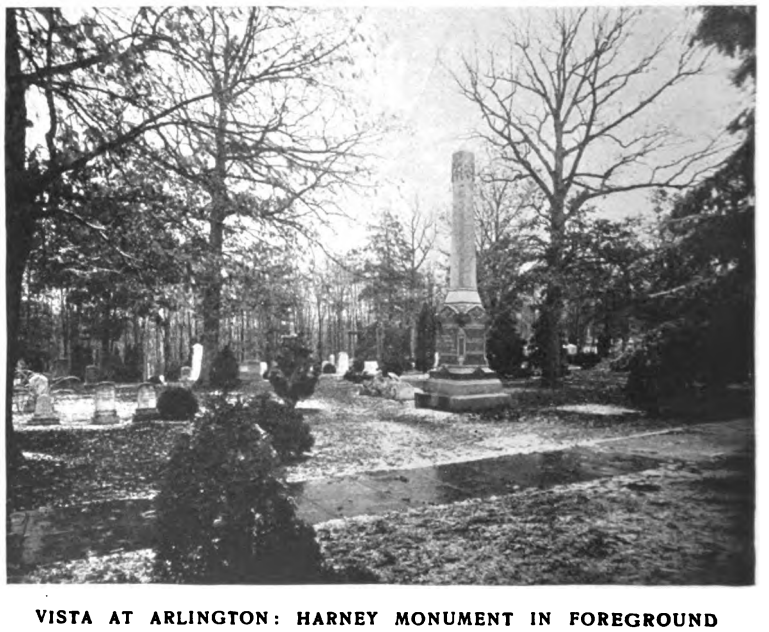
Directly in front of the mansion is a tall flag-pole, on which Old Glory is daily flung to the breeze. Beyond stretches one of the most pleasing views to be obtained anywhere around Washington, although unfortunately it is not one which will photograph well. For miles up and down the Potomac, the river craft are visible, and all of the city of Washington is spread out as a panorama, the Washington Monument, directly across the river, holding the center of the scene.

Leaving the Mansion by the rear drive, you will see a small Temple of Fame, on the upper part of which is inscribed a series of names great in America's history. Throughout the grounds are also many famous graves, among them those of Sheridan, Crook, Doubleday, Admiral Porter, Meigs, Ricketts, Watkins, Burns, Belknap, Harvey, Harney, Ingalls, Lyford,

(CONTINUED ON PAGE 102.)



THE GATE FROM ARLINGTON WHICH LEADS TO FORT MYER



VISTA AT ARLINGTON: HARNEY MONUMENT IN FOREGROUND

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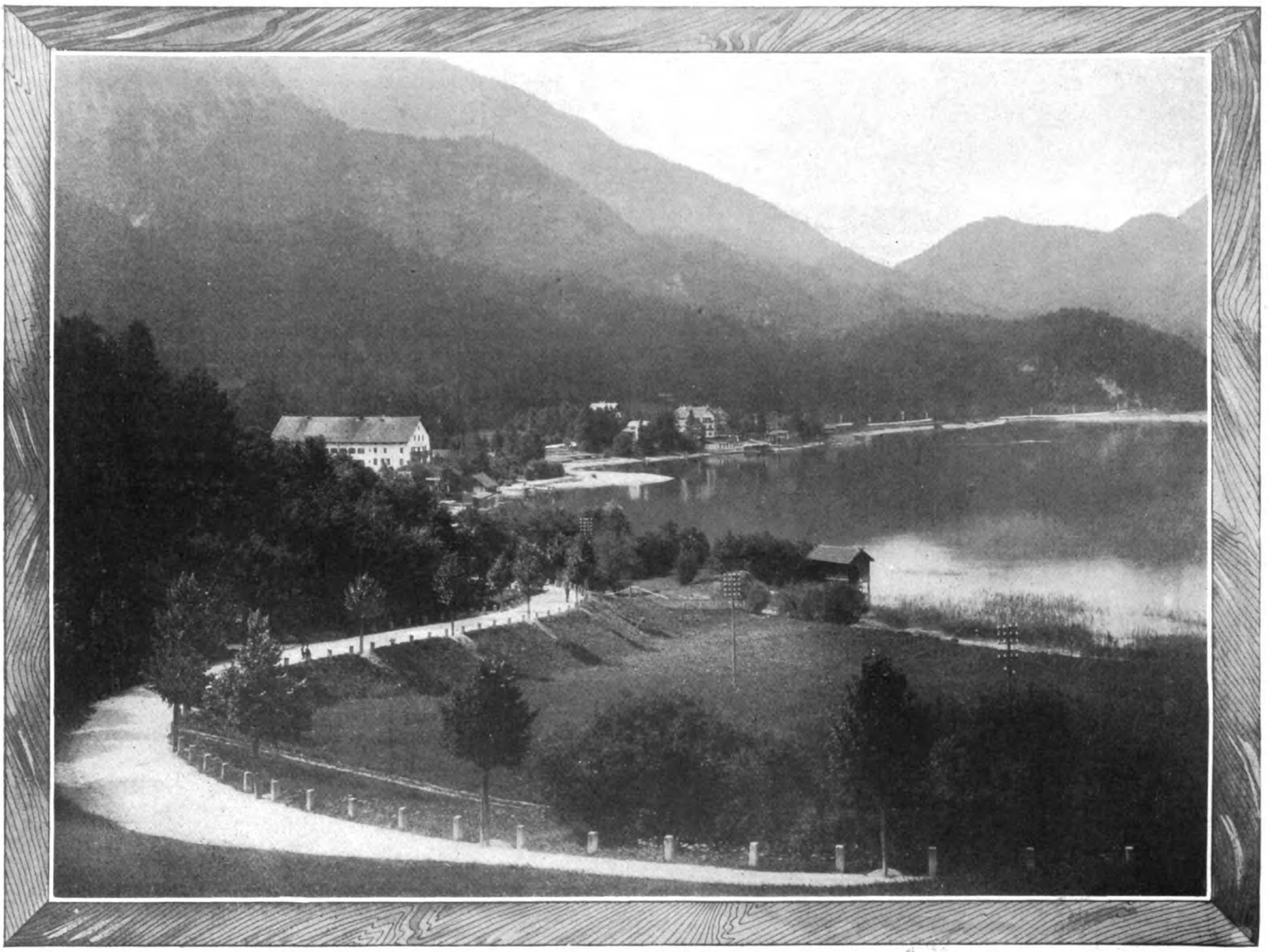
CONTESTS FOR THOSE WHO WOULD TOUR

Competitions for touring cars will be exceedingly popular during the present year, and in three different countries international events of this character are on the schedule. In the United States will come the first contest for the temporary possession of the trophy offered by Charles J. Glidden, the around-the-world traveler. This will happen during July, and the route will be confined to a great extent in New England territory.

The exact details of a somewhat similar event in Great Britain have not yet been decided upon.

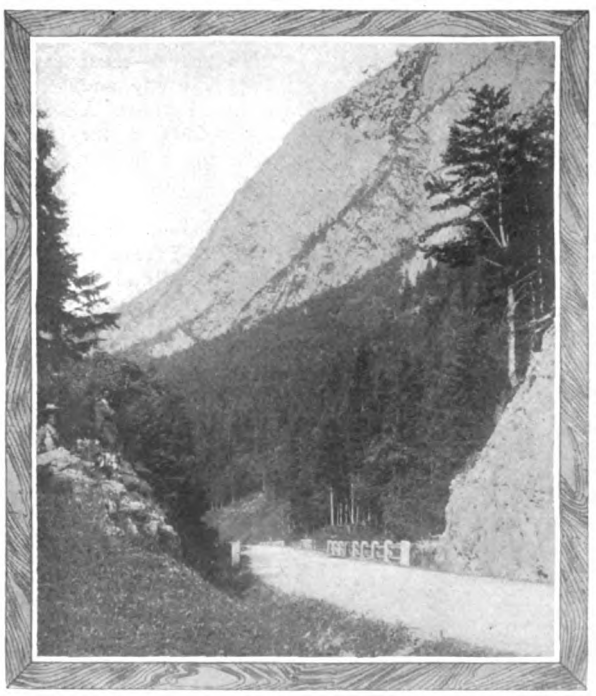
permanent possession of it. Each year the winner will have his portrait painted by Professor von Herkomer, the donor of the trophy. The route of the contest will cover a circuit of the best highways in Germany, as is made apparent in the accompanying illustrations. In order to enter, an American must make his arrangements through the Automobile Club of America, which organization is the only one in this country having an affiliation with the foreign organizations.

Details for the Herkomer tour can be obtained from the secretary of the German Automobile Club at Berlin, or from the



The international Herkomer competition for touring cars will take place in and around Munich during August, conducted by the Bavarian Automobile Club, in co-operation with the German Automobile Club. The event is open to the members of clubs affiliated with the German Automobile Club, and members of foreign clubs desiring to compete must send in their entries to the German Automobile Club through the secretary of their own club. The Herkomer prize is a trophy wrought in fine metal, worth over $2,000, and must be won twice within three years by the same competitor in order to be retained.

The second and third competitions will take place in the country of the previous winner, and under the management of the club of which the winner is a member. If the prize is not won twice within three years, then it will be raffled for by the three winners to decide



secretary of the Bavarian Automobile Club at Munich. Previous to the tour there will be a speed contest over level ground and a hill-climb at Kesselburg.

The route of the three-day tour has been mapped out as follows: First day—Munich, Bruck, Augsburg, Ulm, Tübingen, Baden-Baden; second day—Baden-Baden, Stuttgart, Nuremberg; third day—Nuremberg, Regensburg, Munich. Distance 1000 kilometers.

With the arrangement of these two events have been entrusted by the D. A. C.: Count Sierstorpff, Dr. Levin Stoelping, Baron Brandenstein, of the German Automobile Club; Count C. Schönborn, Baron Schrenck-Notzing, Dr., and Lewis Poehlmann, of the Bavarian Automobile Club.

For more details one should apply to the Secretary of the German Automobile Club, Berlin, or to the Secretary of the Bavarian Automobile Club, Munich.

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COSTUMES FOR END-OF-WINTER MOTORING

By Grace Margaret Gould



Photographs courtesy of Stern.

A JAUNTY LEATHER COSTUME

The motor girl has devised an entirely new way of celebrating Washington's birthday holiday. She thought it out all herself, and then confided it at once to the particular man of her heart at this particular time. Of course, he liked it because it gave him the opportunity of being with her.

The plan is so good and so unique that it seems worth while to pass it on to other motorists.

It is nothing more than a motor pilgrimage to the various spots associated with Washington.

Did you ever stop to think that every road running out of New York is bordered with scenes reminding one of the Father of his Country? He is associated alike with the hills of the Hudson, the valleys of New Jersey, and the dunes of Long Island. Jamaica and High Bridge, Morristown, and Newburgh, Elizabeth and West Point, all speak volumes of his trials and triumphs—of the long bitter struggle, and of the glorious culmination of his first inauguration.

This year, in place of giving the more or less conventional Washington's-birthday luncheon, the motor girl will go a-touring to one of the many places that has a Washington interest. Besides awakening many patriotic memories in the motor girl, her outing of February twenty-second must draw a vivid contrast between the present time and the days of Washington. When Washington came from Mount Vernon in the spring of 1789 to New York City, to be inaugurated as the first President, he journeyed in a coach to Elizabeth, where he was met by a ship, which landed him at the foot of Wall Street, the journey taking him two weeks. Think what this would mean to the motor girl of to-day who is so accustomed to annihilating distance in her swift motor car! Where once were but muddy trails and dusty tracks, there now are smooth, substantial roadbeds. The distance over which the winged car easily glides in an hour then was painfully covered in a day. The triumphant progress of the motor girl, like one confidently borne by the zephyr, would then have been the ceaseless jolting from side to side of a leather-sprung coach.

What must courtship have been under such distressing circumstances? Conversation was impossible, and—as for flirtation—why, every one knows that an outer composure is the first essential for that. Little wonder, then, that woman from the first has been the motor car's best friend. She knows a good thing when she sees it—she is quick to appreciate the proper setting for her charms.

Now, of course, it goes without saying that the motor girl is planning all sorts of captivating costumes for Washington's-birthday tours. Appropriateness is necessarily the first essential of the success of her clothes for these tours. If the motor car is to travel a long distance, the princess of the car must array herself in a costume suitable and practical for the long ride. For this purpose, soft Danish kidskin costumes are most to be desired. While, on the other hand, if the ride is to be a short one, and a supper dance is to be given when the destination is reached, then a long, motor coat of some material such as silk rubber or mohair should be worn to protect and entirely cover the gown beneath.

For a long day of flying over the country in a motor car, there is nothing more serviceable—and jaunty, too—than the new skirt-and-coat costumes of Danish kidskin. An exceptionally attractive model shows a short, walking-length skirt of wood-brown kidskin with a plaited jacket. The coat is made with a plain square yoke, from which the plaits fall. For the trimming, there are kid buttons set in rims of gilt, and the collar and the cuffs are both decorated with a buttoned-over band of the new burnt-bread-color kidskin. To complete this costume there is a fetchingly plaited hood of soft, light-weight kidskin, which ties with grosgrain ribbons of the same shade as the hood. It's the in-for-a-good-time motor girl who will select a costume of this style for her all-day motor jaunt on February twenty-second.

If she likes, she can have the costume of black kidskin, with the bands in bright red or myrtle green, and, if the plaited coat is not becoming, she can have a box jacket, made double-breasted, and trimmed with two rows of big buttons. Corduroy, as well as cravenette cloth, also are good materials for the skirt-and-coat motor suits.

When the motor girl is planning to wear some dainty frock on her motor tour, she must be careful that her coat is a satisfactory protection. Nowadays, it can serve her purpose well, and yet be most fashionable in design. In color, as well as in design, she can have wide choice, because for every conspicuous motor coat made, there is a sombre one in contrast. The silk-rubber coats are perhaps the most fashionable, and at present a deep, plum shade is all the vogue. For out-of-town wear the scarlet silk-rubber coats look bright and pretty. Changeable color effects also are in fashion, and the coat—to have the motor girl's seal of approval—must display costly and artistic buttons. A little fad of the moment is having the belt of these silk-rubber coats fastened with a buckle of value—something odd is liked best, and Japanese designs are favored. The buttons, if possible, should match the buckle.

A silk-rubber, mushroom-shaped hat is good style to wear with a coat of this material. If one prefers, a leather cap may be substituted, and may match the coat.



A NEW VEIL AND A NEW GOWN

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February finds society, especially that element thereof which is interested in motoring, scattered along the American Riviera, where the sunny weather, summer pastimes, and, last but not least, the international contests under the auspices of the Florida East Coast Automobile Association, have served to draw away many well-known people from wintry skies, biting cold, and penetrating damp of New York at this time of the year. Strictly speaking, the New York season will not come to an end until the second week in March, with the advent of Lent. But so many have already left for the South with the intention of remaining there until near Easter, that its brilliancy has been considerably impaired. Indeed, according to some the season has been cut short, and is now to all intents and purposes at an end. Among those who are already in Florida are Mr. and Mrs. William K. Vanderbilt, Jr., Colonel John Jacob Astor, Mr. and Mrs. Howard Gould, the Duke and Duchess of Manchester, Sir Thomas Dewar, Mr. and Mrs. Alfred Vanderbilt, Mr. and Mrs. James L. Breese, Mr. and Mrs. Irving Brokaw, Mr. and Mrs. Albert Shattuck, Mr. and Mrs. H. McK. Twombly, Mr. and Mrs. C. Oliver Iselin, Mr. and Mrs. T. Pearsall Field, and Mr. and Mrs. Frederick Vanderbilt.

* * *

Following the meet at Ormond-Daytona comes the great tournament at Havana under the auspices of the International Automobile Racing Association of Cuba. It begins on the 9th inst., and its principal feature will be a hundred mile race on the San Cristobal Road, which connects Havana with San Cristobal. The course is 50 miles long and 30 feet wide, as smooth as asphalt, and makes possible a speed of 75 miles an hour. The car will go the fifty miles to the control, and after they are all in, they will be re-started on the return trip in the same order as they entered the control. As at Homburg last year on the occasion of the international Gordon Bennett Cup contest, all other traffic will be barred from the route, while the race is in progress, and it is confidently expected that all previous records will be broken. Besides this race there will be a number of other events, afloat as well as on land, and since the Havana season will be at its height and the Cuban Government and people are determined to do everything in their power to make the thing a success, the tournament will be very brilliant and will have the effect of taking a number of people from here, and from Southern resorts to the Pearl of the Antilles. Indeed, so large is the American demand for accommodation at the various hotels in Havana during the race week that rooms are already at a premium, and bookings difficult to secure.



MISS BEATRICE L. HAMMOND, A YOUNG SAN FRANCISCO MOTORIST

* * *

Inasmuch as the Lord Bishop of Winchester, who alone of the prelates of the Church of England ranks as a belted Earl, has been arrested and fined in his diocese for driving his motor through the high street of Alton at an excessive rate of speed, we may now assume that the motor car has at last received the sanction of the church, and that it has taken the place of the mule of mediæval times as a recognized means of Episcopal conveyance. Right reverend dignitaries of the church ere this may have made use of the motor car. But, if so, they have done it more or less by stealth, and most of them seem to have felt that it was not altogether consistent with the dignity of a bishop or archbishop to ride in what is so widely known as the "devil wagon." The Bishop of Winchester, however, seems to have no such scruples. He is a most enlightened and progressive man, who, finding that he can accomplish double the amount of work in the way of Episcopal visitations by means of a swift motor, has not hesitated to adopt it in lieu of his lumbering carriage and pair. His arrest for speeding his machine has served for the first time to attract the attention of the general public to the matter, and it is posible that the magistrates before whom he was brought might have let him off with a mere reprimand had he not added to the heinousness of his guilt in the eyes of the old-fashioned Tory squires who occupied the bench, by wearing a "billycock," that is to say, a derby hat, and a sack coat instead of the long black coat, silk apron, and broad-brimmed, silk-corded, peculiarly shaped top hat which go to make up the distinctive gear of an Anglican "Lord Bishop."

* * *

Some disappointment was expressed at the opening of the Importers' Salon in New York, under the patronage of the ambassadors of the great powers at Washington, at the absence of President Roosevelt. It was pointed out by the foreign envoys and diplomats present, as well as by the many other titled visitors from abroad, that the president of the French Republic did not hesitate to take charge of the opening of the Automobile Salon in the Grand Palais at Paris in December, although up to that time he had always professed a pronounced aversion to motors and his strong preference for those horses to which he is devoted. He came in state, accompanied by several of his cabinet ministers, and although the show was organized on the same lines as that in Herald Square, New York, and was in no sense a government enterprise, yet he signalized the occasion by conferring about a dozen crosses of the national order of the Legion of Honor upon the leading exhibitors by way of recognizing and rewarding their activity in developing an industry which contributes in no small degree to the prosperity of the nation. President Loubet's first visit to the Paris Salon pleased him so much that it was followed by several others, and having allowed himself to be induced to receive a practical demonstration of the good points of certain of the machines by means of experimental rides, he has now become an enthusiastic convert to motoring, and has purchased a couple of motors for his own use. Perhaps if President Roosevelt had consented to open the salon at Herald Spuare, or, better still, the N. A. A. M. show in Madison Square Garden, he, too, might have been cured of his prejudice against the motor car.

* * *

Among the principle advantages of the motor in the eyes of prominent people in America, as well as in Europe, is the privacy which it affords. In these days of ever-increasing publicity, the comings and goings of statesmen, of great financiers, and of leaders in society, are noted at nearly every railroad station, and are communicated to the public through the press in a manner often calculated to prove a source of much embarrassment and annoyance. It is easy to understand that the journeyings of some all-powerful minister of state, if they become known, may interfere with the projects which he has in view. The controllers of the money market are equally desirous for the same reason to shun publicity, while there are time, strange though it may appear, when conspicuous figures in society yearn for a little privacy. This they can obtain by means of the motor, and the British Premier, Arthur Balfour, in conversation the other day, waxed eloquent concerning the freedom from observation and publicity, which he derived from his motor. His goggles and visored cap furnish an impenetrable disguise, and he is now able, not only to call upon politicians, statesmen, and diplomats in town, but even to leave the city to visit the sovereign at Windsor, or to stay at country houses without attracting any comment, or being recognized. Of course, there is always the possibility for those who wish to take the trouble, to identify the owner of a motor car by means of its number. But well-trained chauffeurs are now careful, immediately a car is stopped, to veil its number. Indeed, the newest cars are now being constructed with an ingenious slide, which is let down over the face of the license number as soon as ever the wheels cease to revolve.

* * *

The new clubhouse of the Automobile Club of America will be a very up-to-date affair and is to cost over half a million of dollars. A site will be selected probably on upper Fifth Avenue and the plans provide for extensive garage accommodation and for the most perfect of appointments. Albert Shattuck, Colgate Hoyt, and Dr. S. S. Wheeler constitute the building committee, and among the members of

(CONTINUED ON PAGE 88.)

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ELECTRICITY FOR ROAD VEHICLES, WHEN?

By H. Waymouth Prance, A. I. E. E.

Electricity is *the* power of the future—at least everyone says so, and unless some unexpected discovery takes place we may safely consider the statement to be true. Will it be the motive power of the future road vehicle? This question time alone can settle; meanwhile, with the improvements in construction and the cheapening of the supply of electricity, there is no doubt that the electric car will, as time goes on, form a more serious rival to the petrol car than it does in the present day. In considering the subject of electricity as a motive power for road vehicles, we will exclude electric tramcars, though they may be considered road vehicles; they run upon a special track and have special facilities for supplying the motors with the motive power, and thus have great advantage for economical working over a car upon which the supplying unit must be carried on board. We first will consider the various ways in which this most perfect form of energy may be applied to road vehicles.

Broadly speaking, four methods of supplying the electric energy may be used—primary cells, secondary cells, transmitting power from a generating station by means of overhead trolley wires, or a dynamo carried on the vehicle.

The first of these methods may be at once dispensed with, as being at present impracticable. We say at present, because, though so far no one has succeeded in deriving electric energy direct from coal or other such substance, it is within the bounds of possibility that our scientists may yet discover a method of obtaining energy from some such natural source other than combustion.

The second method of supplying electricity—by means of secondary cells—which is the one most commonly in use, is in spite of recent improvements in accumulators a very inefficient one, and is likely to remain so until a cell is produced which combines lightness with large capacity and freedom from rapid deterioration. The stringent conditions under which a cell is used for traction work render the present-day article entirely unfit for its purpose.



WHEN THE MOTOR CARS COME TO TOWN IN THE MIDDLE WEST

It was hoped that the Edison cell would remove all these disadvantages, but, though an improvement upon former attempts, it hardly can be considered ideal. In a motor car, a means of obtaining power for long periods continuously is required; the fact that secondary cells take some time to charge detracts greatly from their usefulness; and this, added to their low capacity, renders them more suitable for broughams than touring vehicles.

The third method—that of transmitting power from a generating station by means of overhead trolley wires—in a somewhat similar way to that used with tramcars, although not suitable for private cars, is an economical method for vehicles which always traverse the same route, and might with advantage be employed by such users as railway companies, who in Europe now are employing motor stages to feed their lines from outlying districts. Without entering into a technical description of the system, we may say that, used in conjunction with accumulators, this method has many advantages; the cells need be only large enough to drive the car over those parts of the route where there might be no overhead conductors, and, therefore, need not be as large as when they have all the work to do. By arranging the cells so that their voltage when charged equals that of the normal voltage of the line, no current would be taken from them when the trolley is in use; and, should there be any reduction of pressure on the line, due to overload or other causes, the cells would help to supply the motor with power. On the other hand, if the cells were below their full voltage a charging current would be taken from the line, and by this means the cells would be always kept in good working condition. Various modifications of this system are in use. The trolley connection is only used as required, so that it never hangs loose or interferes with traffic passing underneath.

The fourth method of obtaining electric energy—by means of a dynamo carried upon the car and driven by some prime mover such as a petrol engine—though at first sight apparently a wasteful one, has been found to give good results in practice.

By special arrangement of the engine, a direct drive may be obtained without the intermission of the electric motor; thus, should any of the electrical equipment break down, the car still is provided with a means of traveling. The writer remembers seeing a motor car of this type that also was equipped with a battery of accumulators—was, in fact, a complete generating station in itself. Thus three means of driving were obtained—the gasoline engine running the dynamo that supplied the current to the electric motor (or when the car was stationary charged the accumulators), the electric motor run by means of current from the accumulators, or direct drive from the gasoline engine. The weight must have been considerable, but the method appeared to give every satisfaction, and, at any rate, one could always feel sure of having enough motive power to get home with.

Were it possible to look into the future, a fifth method of supplying electric energy to a vehicle might be enumerated—through the medium of etheric vibrations—in a somewhat similar way to that now employed in wireless telegraphy. There then would be an energy transmitter at home, and a receiver on the car, which would collect the energy and conduct it to the motor. This reads more after the style of one of Jules Verne's or H. G. Wells's tales, and most people will say they don't believe it possible. The only rejoinder is, "wait and see." No one would have believed it possible fifty years ago that we ever would be able to transmit signals for miles without any tangible medium.

To return to electricity as we have it in the present day—not one of the least disadvantages of the electrically-propelled car is the difficulty of getting the cells charged—gasoline now can be obtained almost anywhere, but it is not such an easy matter to get a battery of accumulators charged. This disadvantage will disappear gradually as electric power comes to be more universal, but meanwhile central station engineers might increase their revenues by accumulator charging during the slack hours of the day. If the necessary connections were made, cars might run in and have their batteries charged without causing any inconvenience whatever; and, if this were so, one could always feel safe in the fact that a charge could be obtained anywhere where there was electric light. That such a state of affairs will arrive may be predicted with confidence, but we may have years yet to wait before it comes to pass.

Summarizing the demerits and merits of electricity as a power for road vehicles—applied in the manner at present in most general use—by means of accumulators—the demerits are: low capacity, great weight and weak mechanical construction of accumulators, time taken in charging them, and lack of facilities for charging. Against these are merits—free from vibration, odor, and noise; ease of control; and simplicity of motor and gearing. The smooth-running qualities of an electrically-propelled vehicle have a fascination which, when once experienced, never can be resisted, and, as improvements take place and charging facilities increase, the electrically-propelled vehicle is bound to gain in favor; hence we may agree that electricity is the power of the future.

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MOTORING THE YEAR ROUND

By Robert Bruce

Within the past two or three years the motor car has become an all-the-year-round vehicle. It is, in fact, the only means of transportation that can be used on city and suburban streets and on good country thoroughfares practically throughout the four seasons in our climate. In the seaboard cities, New York particularly, cold, blustery weather now has little other visible effect upon the movement of motor cars through the streets than to add various protective equipment to the cars themselves, and heavier, closer-fitting garments to the clothing of their drivers and passengers.

Even then, open cars are not conspicuously absent, while demonstration cars of all kinds continue their trips about the city and suburbs, perhaps the better to prove the essential points of speed and power, under difficulties, to the intending purchaser. The National Show in midwinter, immediately followed by a lively southern exodus of motorists, has something to do with the sensible and growing custom of keeping riding outfits in continuous commission. Beyond this, however, the gradual perfection of gasoline vehicles and others is the main reason for this newly acquired breadth of the sport. Nor are makers of motoring apparel behind the builders of cars in adapting their products to all seasons.

Now, too, "Our Lady of the Snows" has been met on new ground, and as a result something of her ancient right to hinder free locomotion from point to point on wheels has been lost. Where heretofore only the sleigh, the toboggan, the snowshoe and the ski have been partially able to hold their own, the powerful motor trails successfully over her thick carpets of white, outspeeding or riding triumphantly through a storm that would condemn any other kind of wheeled vehicle to either a snail's pace or a stalling.

While the apparently omnipotent railroad locomotive is fighting its way through baffling snow, or is obliged to proceed under the protection of carefully arranged snow-sheds, or after pioneering plows, the motor car is making its way through a hundred cities and a thousand towns with little inconvenience or hindrance. The mighty power of the "third rail" on the electric railway fritters its giant strength away in brilliant pyrotechnics when the snow first alights upon it, while the modern motor car—small in comparison, but much better adapted to all-around service—makes light of the same situation. The passengers of the former are more likely to have their schedule interfered with than the passengers of the latter.

So it is with most of the barriers which winter interposes. During summer and winter alike, the properly equipped motor car takes its owner and his family and friends from their business offices or the shopping district to the city or suburban home, landing them, rosy-cheeked and happy—at their own doorsteps. Short tours into the country, when conditions are favorable, are no longer impossible, or even subjects of doubt, in January, February, or March.

Herein is an advantage of present things over the things of the past, not yet appreciated to the full. Time was—not so very long ago—when the approach of winter meant the enforced abandonment of the country home until spring cleared the tracks leading thither, and the daffodils pushed their golden crowns through the awakening soil. This certainly is not so much the case now. We have found out that week-end parties are as possible, and as fully enjoyable, when the landscape is covered with snow, as when summer breezes flap the sails and the click of the golf ball is heard in the land. Of course the motor car has not wrought this change, but it has helped wonderfully, and is a potent influence in the important matter of keeping the roads open.

Furthermore, people are coming to understand, something as their forefathers did, that the country in winter is full of splendid recreation possibilities. There is a vast amount of real tonic in the outdoor air when frost is on the ground and snow covers everything commonplace and ugly. Even the frail constitution can stand much more exposure than we are apt to think, and get from it a royal benefit as well as a rare enjoyment. Then, more than at any other time of the year, there is a revival of strength in every breath. The rosy cheeks, dancing eyes and hearty appetites of the cold weather motorists all testify to the truth of this assertion.



A THOMAS PARTY IN CENTRAL PARK

Of course, this is not claiming that the motor car makes all things possible; perfection of mundane transit arrangements need not be expected even with the successful co-operation of our friends the airship wizards. There are winter conditions, at least in the country, that will occasionally put any wheeled vehicle out of commission. Then there are problems of personal protection and comfort quite different from those of milder seasons. Instead of the fluttering comforting breeze, there is a biting, nipping, deadening cold that one must be on his guard against, sometimes even before noticing it.

One of the dangers of cold intensified by rapid motion through it is that the approach of its consequences are largely unobservable. The ear, cheek, or nose becoming frost-bitten frequently is so numb that the attack is not noticed. Of course, no one need submit to a frost-bite—the Esquimaux seldom do even under conditions which no motorist is ever likely to undertake—but that is because they properly protect all exposed surfaces, even wearing goggles of smoked glass to save them from snow blindness.

If any portion of the body should chance to become frost-bitten, do not under any circumstances go into the warmth of a house—at least not close to a fire—until the affected parts have been thawed out by the application of snow. It seems heroic and apparently paradoxical to cure cold by applying cold snow; but it is the most efficacious way. When the thawing-out process begins it will be unpleasant—more so to some persons than to others—depending largely upon the individual vitality and state of the circulation. Mr. Frederick G. Jackson, who spent three years in Franz Josef Land, where in his but the temperature often fell to 40 degrees below zero, and who

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A PEERLESS PARTY IN BOSTONTOWN

was frequently frostbitten, says that a bandage steeped in a solution of lead and opium lotion will materially allay the thawing sensations. As he put this often to the test and never suffered any ill effects from his numerous exposures, it may be worth while for northern motorists to make a note of it.

One word more about personal protection: do not fall into the common error of thinking that because your hired chauffeur does not feel this or that exposure, or does not take this or that step to protect himself, that therefore you can safely follow suit. Remember that he may have become immune by long, professional practice to conditions which might be serious to you.

It is a commonplace of motoring never to start until your machine is ready, thoroughly inspected down to the minutest detail, and found to be in perfect going condition. This is doubly important in winter.

Be content with a pace slower over snow than you are accustomed to at other seasons. That is, unless you know the road thoroughly and have seen it quite recently before the snow covered it; for snow, like charity, covereth a multitude of sins. It looks all so very smooth, innocent, and enticing, and it is so level on the surface, that one is apt to forget that it hides all the traps which we can see and avoid at any other time. Even "thank-you-marms" crossed unexpectedly at a wrong angle are liable to give the machine a bad jar, to the danger of breaking some vital part. Keep in the middle of the road, even to the extent of pulling up to let whoever comes or goes pass you, for the edges of a country road have a soft indefiniteness, when covered with an ermine mantle, which it is well worth the caution of a stop to avoid.

A breakdown in the summer is not a pleasant incident, but in the winter—especially if from some avoidable cause—it is apt to be as unpleasant as it is exasperating, with the added difficulty of getting helped out of it. A friendly lift from a fellow motorist is less easy to find. In the summer farm work is going on in every direction, and a motorist in distress, even if he be a joyous sight to the eyes of the man with a hoe, is likely enough to be discovered in a few minutes. But in the winter there is little traffic, and less outside work; so a broken-down motorist may have an uncommonly long tramp to a lone farmhouse where the candle is flickering in the windows. Although you are tolerably sure to be treated with fair hospitality, you are not so sure you will be able to get the help that the proudest of road travelers may find it necessary at times to seek.

So far, it has been assumed that the snow is virgin, and only packed or cut up by the ordinary road traffic of winter, and that its inequalities are those of the surface out of sight. But when the snow has been down through a long period, it may have been cut deep with sleigh grooves and subjected to alternate periods of frost, thaw, and rain. Some places which the adventurous motorist will be apt to find may have been watered to get a frozen surface for logging, or similar purpose. In that case the difficulty will be to keep the wheels from slipping; in fact, it scarcely is advisable to try much motoring over the snow at any time without the adoption of some of the



A POPE TOLEDO PARTY AT THE WASHINGTON MONUMENT

non-slipping devices now on the market. Should they not have been affixed, or not be available at the time the difficulty arises, the help even of a friendly clothesline laced around the rear wheels is not to be despised.

The change from the highroad to the spreading level of a frozen lake may be attempted with no additional danger inherent to the machine other than its weight, and that is of no moment on our northern lakes, the strength of whose ice surfaces is well known. At few spasmodic efforts, but very successful, have been made to race motor cars on lake ice, notably on Lake St. Clair last winter. In Norway, some races are scheduled for this winter. Some ice records have been made already and more are likely to be achieved in the future. Certainly it is proved that ice motoring is well within the range of the stanch, reliable cars of to-day, with their abundance of reserve power. It is this that places the motor in the forefront of all winter locomotion.

The quality of untiringness gives the motor a place as a means of preventing cruelty to animals, especially in winter. The design of a motor car ought to be engraved on the seal of every society for the prevention of cruelty to animals in the



COMMERCIAL MOTORING IN HARTFORD, CONN.

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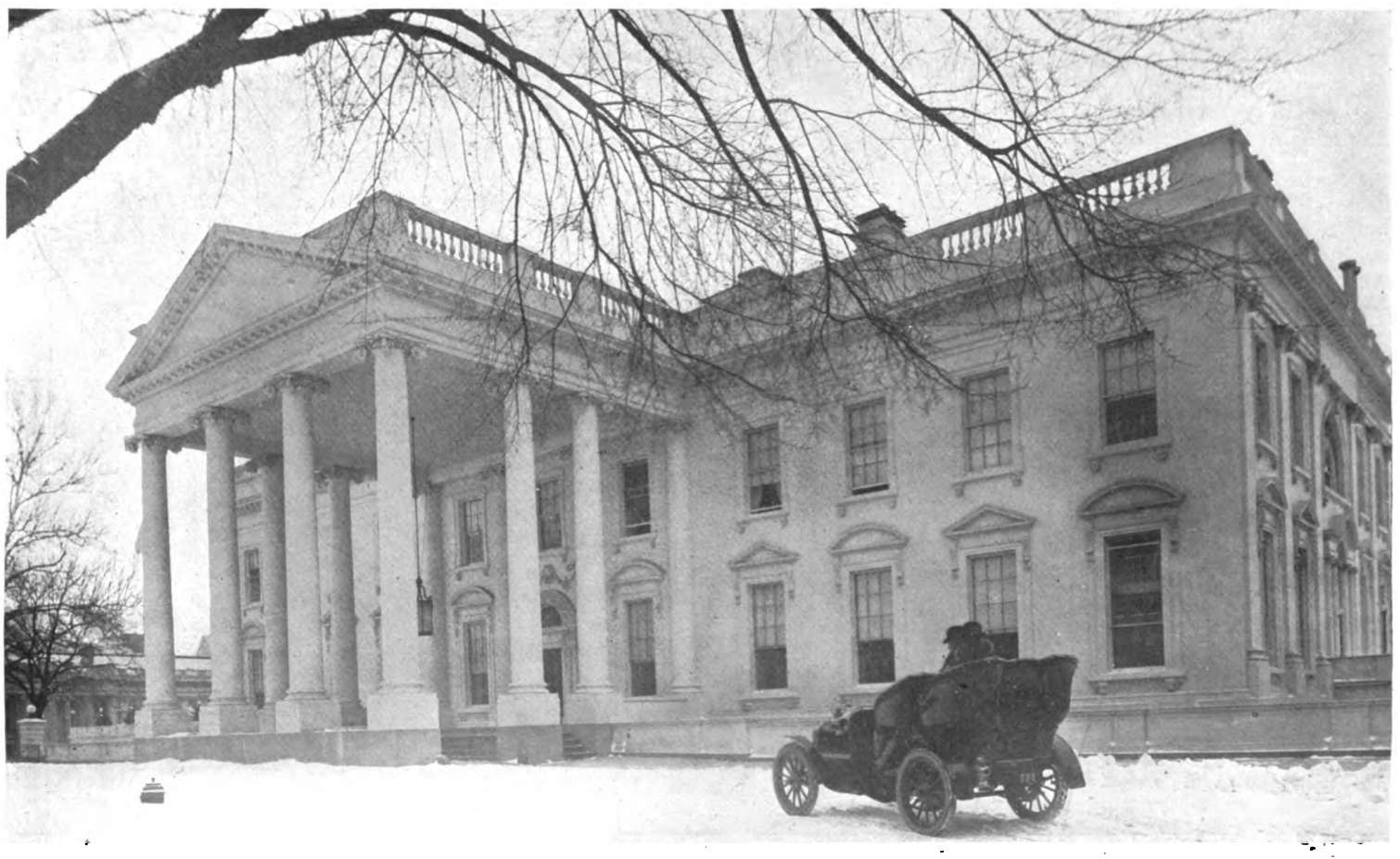


THE STATELY FRONT OF THE CAPITOL AT WASHINGTON

land. It has accomplished more in the direction of liberating the horse from torture than all the other devices, all the laws, and all the good intentions of horse owners. Long winter journeys through deep snows always could to a great extent be avoided, but in the cities it has proved impossible to save the horse from the hardest kind of winter tasks in the hardest kind of weather. Shopping has to be done, special calls made, and merchandise hauled, whether or not.

The use of two horses instead of one, and of three instead of two, has served merely to spread the evil. Roads and streets will remain quagmires of heaped-up snowdrifts through which the horses strained their hearts out, or shiny, frozen surfaces over which they sprawled in a fear that exhausted them as much as their heavy toil. All the while the piercing winds and blizzardy sleet froze them to the bone. Happily that sort of thing is decreasing fast everywhere, as for many purposes the motor truck displaces the horse in the cities.

(CONTINUED ON PAGE 84.)



A VISIT TO PRESIDENT ROOSEVELT AT THE EXECUTIVE MANSION

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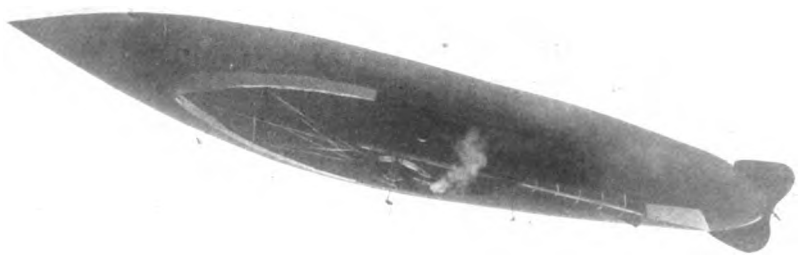
A RIVAL TO THE CUP RACE?

By Monsieur Carbureter

PARIS, Jan. 20.—The éclat of the great Gordon-Bennett cup race is threatened with that of a counter attraction. The new race will carry the formidable title of the Grand Prix de l'Automobile Club de France. The explanation of this new Richmond on the road lies in the fact that the French motorists want the rules of the Gordon-Bennett race changed, and if the rules are not changed, they will run a new race in which French representation will be more equitable in regard to the importance of the French motor-car industry.

The plan is to run the old race and the new one at the same time this year, and provided the objectionable rules are not changed, the old race will be suppressed entirely next year. The French standpoint, more or less well founded, is that comparatively unimportant motor-car manufacturing nations like Switzerland and Austria have the same representation (three contestants) in the Gordon-Bennett race as France, which, as nobody can deny, is far the most important, as a producer, of all the nations on the list. The project for the race is still in an embryonic state, although the determination of the French leaders to obtain what they deem to be their rights is distinct.

In the controversies now going on there is no display of feeling with reference to the giver of the famous trophy. It's simply a case of full discussion with an eye on France's position in the motor car trade and sport. The Grand Prix de l'Automobile Club de France is, however, somewhat removed from a "leaden" certainty, mainly for the reason that the government may politely refuse to grant a permit. If the Minister of the Interior refuses to deliver a permit, he will do so because he fears that in an international contest of the kind contemplated, with a necessarily large number of competitors, the drama of Paris-Madrid may be repeated.



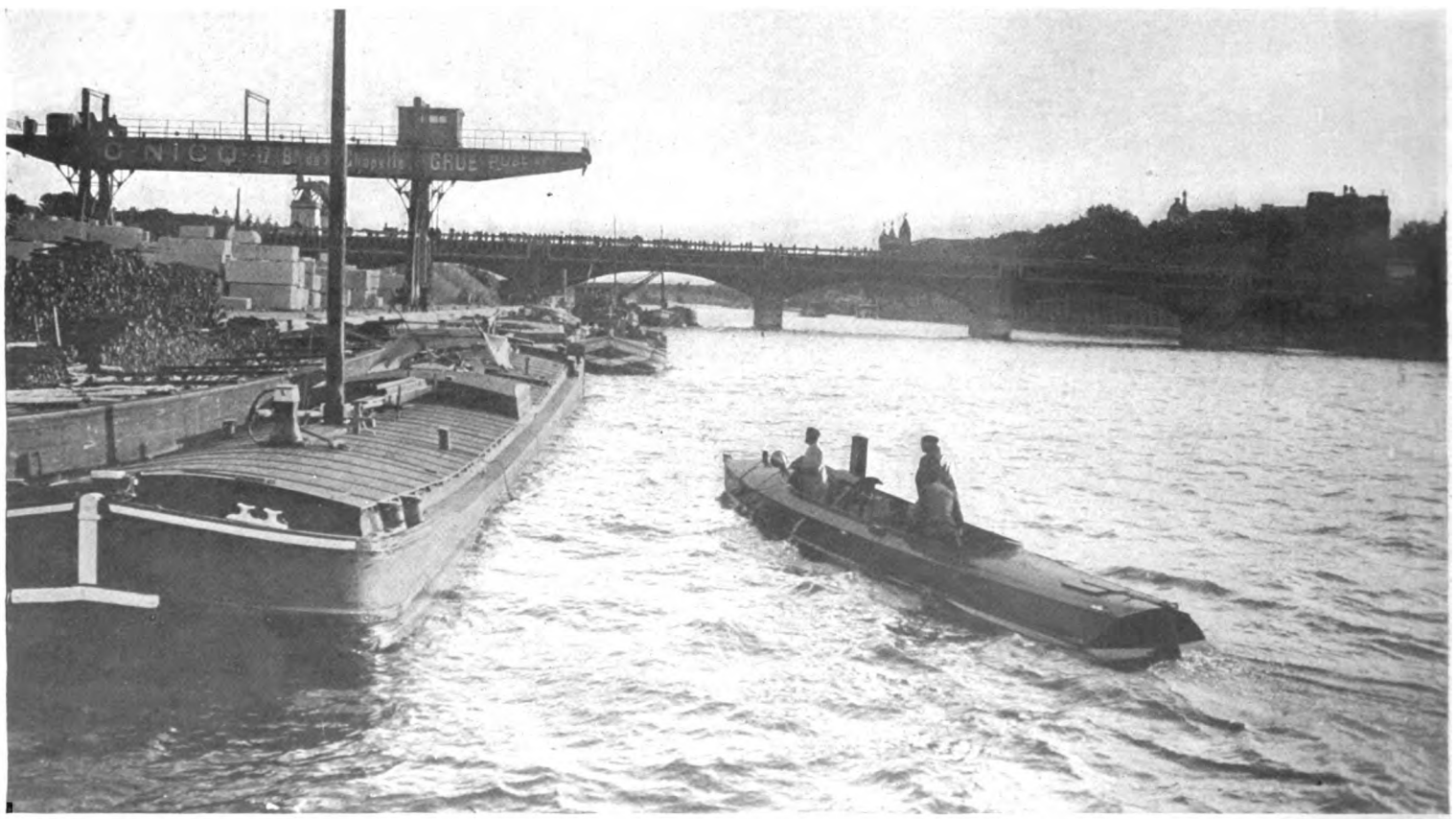
THE LEBAUDY AIRSHIP WHICH HAS MADE OVER SIXTY SUCCESSFUL FLIGHTS

Over sixty successful flights, thirty of which were during 1904, have been accomplished with the Lebaudy airship. The inhabitants of the town and vicinity of Moisson, about thirty miles west of Paris, have become almost as well accustomed to the sight of M. Juchme's piloting the Lebaudy craft about the airs as to that of the motor cars that kick up the dust on the way to Mantes.

This craft is fitted with a 40-horse-power, four-cylinder Mercedes motor which makes from 500 to 1,100 revolutions a minute.

One of the best flights of the aerial machine of Messrs. Pierre and Paul Lebaudy during last year was one in which it traveled 24 kilometres in 52 minutes, the average speed being almost 17½ miles an hour. The existing model is known as "Le Jaune," which, compared with earlier models, has greater volume, permitting the carrying of more ballast and gasoline, also insuring greater stability.

The Automobile Club de France has selected, for the French eliminatory trials in view of the next Gordon-Bennett cup race, a course known as the "Circuit Auvergnat," so named because of its location in the district of the old province of Auvergne. The decision was reached after a list of proposed circuits had been carefully considered with regard to the condition and conformation of roads, the hills and crossings.



FOURNIER, IN THE WINNING HOTCHKISS WHICH SCORED IN THE RACE HELD ON THE SEINE DURING THE PARIS SALON

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WINTER TOURING IN ITALY

FROM FLORENCE TO ROME



BY AVANT COURIER

The motorist leaving Florence for Rome has a choice of two roads: one via Sienna and Viterbo, which is slightly the shorter; the other by Perugia, which is about 250 miles long. I have set out both roads on the map, for it may be that some motorist would like to go south by one, and come north by the other. Each will justify its claims, but as I must choose, I advise the Perugian route on the way out. This ascends the upper Val d'Arno by a fine road on the right bank of the river, and follows the bend of it to Incisa, where it crosses the river, which at this point is contracted to a narrow gorge. Incisa is very proud of the fact that the patrimonial property of Petrarch is within its bounds. The road thence continues on the left bank of the Arno through Figline, San Giovanni, and the market town of Montevarchi, amidst scenes of great richness, and a luxuriance of vegetation scarcely surpassed elsewhere in Italy. The mountain slopes produce the wine which has carried the name of Italy round the world, with her hardy sons, "Chianti." From Montevarchi the road ascends, gradually, leaving the Arno on the left. The lovers of the wild and picturesque will find justification for an aside, in the basin of the Appenines formed between the great chain and Monte Prato Magno, in which lie the sources of the Arno, and in whose deep and secluded recesses are the convents of Camaldoli and La Verna. On the steep slopes of Monte Prato Magno, looking back towards Florence, now some 18 miles off, is Vallambrosa.



As we near Arezzo the road crosses the canal "Mæstro della Chiana," which has converted the Val Chiana from a pestilential marsh into some of the most fertile land in Tuscany. Arezzo, which once claimed to be an ancient city of the Etruscan league, has honors to which she has a more substantial title, as the birthplace of many distinguished men of whom mention need not be made more than of Mæcenas, Petrarch, and Guido, the inventor of musical notation.

The same rich character of scenery accompanies the traveler as he advances to Camuscia: and Cortona, perched high above on a wooded hill on the left is worth a visit, without the motor, to examine its Cyclopean walls, the undoubted work of the mysterious Etruscan, and to enjoy the view from them which extends even to the Mediterranean. Soon after leaving Camuscia the road ascends Monte Spelonca, the former boundary of the Papal States, more commonly known as "The States of the Church." Tuscany is behind us.

The views from the descent are heightened by the waters of Lake Thrasymene, beyond which lie the range of Montipulceano, and on the left the snowy mountains of Sibilla.

Descending towards the lake the road continues along its shores, and through the two villages of Passignano and Torricella. It then ascends to La Magione. From La Magione the road descends, steeply, to the valley of the Caina, which it traverses. It then rises towards Perugia, whose massive fortress seems to threaten all who approach. The city is entered by a very steep road; in the old post days a relay of bullocks was always kept to help up heavily laden carriages in reaching the gates. Perugia is on the ridge of the mountain which divides the watershed of the Caina from that of the Tiber, which is first seen here.

The descent from Perugia towards the vale of the Tiber is as steep as the ascent on the yon side; then the road traverses the valley of the Chiasca, and ascends gradually that of the Topino, both tributaries of the Tiber, towards the hamlet and church of St. Maria degli Angeli; or, rather, the ruins of that church, for the structure was destroyed by earthquake in the year 1831. On the left of the road is Assisi, surrounded by its battlements and towers, and commanded by its lofty citadel, with its long line of arches stretching across the mountains, immortalized by Dante in his description, par. xi., 42.

Assisi will always be conjoined, in sentiment, with its patron saint, S. Francis; for to this ancient town he came after a life of wandering in the world below, to die; and by his example to found an order devoted to poverty, abstinence, and humility — yet inspiring a commemorative church which, for richness and boldness of design, has few equals of its age, and a convent clinging to the hill sides which casts its shadows over the valley, itself glowing in the lingering sunbeams; a scene scarcely to be surpassed, in any clime, for its sublime beauty.



A GENERAL VIEW OF SIENNA AND ITS PICTURESQUE CAMPANILE

Leaving Assisi the road passes over the plain of the Topino river, skirting the base of the hills to a little town built on

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ONCE THE HOUSE OE SEPTIMUS SEVERUS

a projecting spur of red limestone, now known as Spelto, but which in still recent times enjoyed the higher sounding title of Hispellum; and 1,700 years ago was, at the request of its inhabitants, named by the Roman Emperor Constantine, "Flavia Constans"! so do we forget our illustrious ancestry: even as a man may pass to his grave to-day with the ghastly name of "Death," because he did not know that his gruesome cognomen was a corruption of the ancient noble family of "De-ath." From Foligno the road enters the vale of Clitumnus, through which that bright and beautiful stream meanders. Shortly before arriving at La Vene the exquisite little temple of white marble dedicated to the river-god Clitumnus is passed, or, may be, without note, for its portico is towards the valley.



THE BATHS OF CALIGULA'S PALACE

the point (about five miles) where the roads to Rieta and Pie de Luco separate. From this point the descent is best accomplished afoot. These falls will be found eloquently described in verse in Byron's "Childe Harold," and in sober prose he has left his judgment that seen either from above or below: "They are worth all the torrents and cascades of Switzerland put together." An eternal verdure is spread over the rocks by the spray constantly falling.

The whole scenery of the valley of the Nera, above the town, is highly picturesque—only one of the three large arches of the colossal bridge of Augustus remains at Narni, but the adjacent scenery is probably enhanced thereby.

Narni is finely situate on a hill commanding an extensive view of the valley of the Nera, bounded in the distance by the Appenine range. Near the town the river passes through a deep fissure in the rock, the sides of which have, in many places, been excavated, and the cells, or caves, inhabited. The old towers and walls of Narni are highly picturesque, and come admirably into view on leaving it, to proceed towards Otricoli. The route now varies in character: the prospects widen towards the south; the olive grounds increase, and from the high ground before reaching Otricoli, the Tiber is seen winding its course towards Rome, and the first view of Monte Soracte, rising above the Campagna, is obtained. The scenes are less rich than on the confines of Tuscany. Before reaching Borghetto, the

(CONTINUED ON PAGE 82.)



A GRAND PANORAMA OF ROME FROM THE CUPOLA OT ST. PETER'S, THE MOST HISTORIC EDIFICE OF CHRISTENDOM

The approach to Spoleto offers a rich promise of enjoyment in its towers, castles, and forest back ground, and few places afford so many objects for the sketch book—its old fortresses; and its vast aqueduct, one of the loftiest known, spanning a ravine in which it is a singularly fine object.

Soon after leaving Spoleto the road winds up and up the tedious ascent of Monte Somma, 3,738 English feet above the sea. The descent towards Terni is much wider than on the upside of the mountain, through, nearly the whole way, a savagely picturesque glen. Terni claims both Tacitus, the historian, and Tacitus, the emperor, as its sons. Its principal claim, for the traveler to-day, is that it is the stopping place for an excursion to the falls of Terni. The motor car can be driven up to



THE APPROACH TO ROME OVER THE DESOLATE CAMPAGNA

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The Wonderful Monster

BY PERCY WHITE.



SYNOPSIS OF FIRST CHAPTER, BY E. F. BENSON.

Lady Beeston, the wife of Sir Wilfred Beeston, is enthusiastically fond of motoring, and at a bridge party at their home in Hampshire she entertains the guests with a wierd rhapsody, concerning the delight she experiences in driving her new car at railway speed about the countryside, and her belief that it possesses some sort of independent life and intelligence, depending, however, upon human presence and contact. In the party are Gerald Morton, a former suitor of Lady Beeston's, and Muriel Carrington, whom Lady Beeston considers very well suited to each other. Later in the evening, Gerald, Sir Wilfred, and Bertie Farquarharson are discussing the talk of the party, and at last happen to step out of doors for a moment. The night is starry and clear, but bitingly cold. They turn to go in, when Lady Beeston's car throbs rapidly down the drive, throws the beams from its great eye-like lamps for a moment upon the observers, and then passes like a whirlwind to the stables. Despite the darkness, the outline of the car clearly indicates that it carries no passenger.

SYNOPSIS OF SECOND CHAPTER, BY RITA.

Late the same night, Sir Wilfred is surprised to find his wife still about, and gains from her the admission that she has been half-planning a midnight ride in her car, a form of dissipation to which she admits she feels herself becoming addicted. Sir Wilfred is much worried, and various circumstances—Lady Beeston's unnatural enthusiasm, a fainting spell, and her own misgivings—increase his worry. Pierre Cassagnac, the Beeston's chauffeur, is a hunchback, wonderfully competent as a motor-car expert, but acutely conscious of his infirmity, and secretive about his antecedents, though he is supposed to be of excellent family. Like Lady Beeston, he is almost maniacal in his exultant fondness for fast travel. The next morning, both Lady Beeston and Cassagnac declare the car was not used the night before. Nevertheless, there is ample testimony to confirm the fact of its driverless maneuverings. Sir Wilfred sets forth on a hunting jaunt, first begging his wife not to motor that day. He can give no reason except that he has a presentiment of evil, and that in her sleep during the night she had begged him to save her from some impending peril.

CHAPTER III.

Colonel De Vigne and his wife arrived at lunch time. A sudden snow storm had put an end to shooting and skating; motoring was out of the question, partly because Pierre complained of a migraine affreuse, but chiefly because even the temperature of Lady Beeston's enthusiasm was lowered by the certainty of side-slips. "The Wonderful Monster couldn't quite skate!" she admitted.

Sir Wilfred Beeston glanced across the table at his wife; to his relief she seemed to have quite recovered from her strange attack. "If she had seen ghosts," he reflected, "she couldn't have looked more horrified." Her extreme vivacity, he noticed, was subdued. This comparative reticence of manner her husband attributed to the presence of his uncle, Colonel De Vigne. The Colonel was a distinguished soldier. Dot, Sir Wilfred remembered, always said that she could not make up her mind whether to class De Vigne among the cynics or the fogies. The Colonel sometimes even dared to criticize his nephew's wife with an impartiality that no brilliant woman in her own case can possibly encourage.

"My dear fellow," he once said to her husband, "your wife is so charming that she can quite well afford to do with a little less admiration and a little more censure."

If the set in which the Colonel played the part of an impartial observer had been acquainted with his views on its intelligence and sanity his popularity would have much decreased. As it was, his habit of reducing nonsense to its lowest terms and applying common sense even to the conduct of women who acted as though they thought it vulgar, did not always make him loved. Fortunately he was an exceedingly handsome man of fifty—an age which those who have gracefully attained it consider the ripe centre of manhood—an illusion some of the most intelligent women recklessly encourage. In fact, the Colonel's martial figure and strong aquiline face permitted him to give his advice, even when unasked, in a manner never tolerated in scrubby little gentlemen in less attractive professions.

"The man who tells the truth, especially to women," protested his wife, "cannot hope to be liked."

"I'm quite as much liked as I want to be," replied the Colonel.

"I'm not referring to those romantic girls," returned Mrs. De Vigne, with some asperity.

"My dear woman," returned De Vigne, with singular want of originality, "girls will be girls; you can't expect me to stop 'em."

This conversation occurred on the previous evening in the dining-room at the De Vigne's flat in Rutland Gate, while the childless pair were discussing the coming visit over their coffee cups.

Wilfred was pleased to see his uncle. For a man married to a brilliant woman with a temperament which ran away with her, it is sometimes agreeable to have within hail a strong-minded relative whom you can consult. When, therefore, lunch was over, he took his uncle to his study, gave him a cigar, and, as delicately as he could, suggested the nature of the mystery threatening his house. What was this inexplicable, horrifying, alluring force oppressing his beautiful wife? Perhaps the Colonel, with his long Indian experience, could throw some light on it.

Although Wilfred had asked Bertie Farquarharson not to mention the fact to his wife that her motor had whirled back through the darkness to the stables apparently without a driver, his guests at lunch had discussed the incident almost with as much interest as it deserved. It was so full of the incomprehensible, so suggestive of adventures beyond that spectral borderland which it will be fashionable for the next generation to explore, and on the threshold of which our own investigators (often at 20 Hanover Square) are only prematurely dabbling.

"Let me see if I've taken it all in," said the Colonel, when his nephew had finished his story. "Dot—the charming, brilliant, but all too impressionable Dot!—has become passionately, deliriously attached to her motor car. Furious driving with a grimly fascinating chauffeur is, for the moment, her chief delight?"

The Colonel looked at his nephew inquiringly to ascertain how far the latter assented to these conclusions; Wilfred nodded a little impatiently. His uncle's manner was slightly ponderous, "as though," thought the nephew, "he were sitting on a court-martial." "The chauffeur, I take it, is a man of good character!" resumed the Colonel.

Wilfred nodded again.

"Married?" inquired the Colonel.

"Gracious, no!" exclaimed Wilfred.

"That's a pity," said the Colonel. "A married chauffeur with a family is far more reliable than a dubious sportsman with a lust for speed."

"Possibly," said Wilfred, a little wearily.

"Now," pursued the Colonel, "and this is the point where the mischief begins, you fancied you saw Dot's motor car, without a driver, or any visible driver, tearing home to the stables last night?"

"If Pierre had been there Farquarharson and I must have seen him," said Wilfred.

"Deuced odd!" observed the Colonel. "When you questioned the chaffeur he replied that he'd neither seen the motor start nor heard it return. He had cleaned it and there were no signs to show that it had been used since he put it away. Deuced odd, 'pon my word it is! Then when you protested he was inclined to be impertinent?"

"He simply said in French—I learnt it at Eton and can't pretend to follow it very clearly—that if 'Monsieur doubted his word Monsieur must get a new chauffeur!' As Dot would never forgive me if I sacked the fellow, and since it would be most inconvenient to be without a capable motor man at Christmas time, I—well—I thought it better to humor Pierre than to make him understand some people might mistake him for a liar."

"I see," said the Colonel. "His explanation that Dot's motor is a sort of mechanical Frankenstein scarcely carries conviction, although it is the same your wife gave."

"Pierre referred me to Dot for confirmation. The unpleasant part of the business is she half believes her Monster grows a little more alive every day. The idea is that up till now its life has been intermittent, depending on human presence and contact. Some day it is to get a life of its own, wholly independent. Do you see the thing?"

"Perfectly; it's quite intelligible, but not very ingenious nonsense. I wonder who invented it?"

"Pierre or my wife?"

"Yes. Probably they collaborated, or possibly it's only the sort of jumpiness too much motoring leads to."

"But what would you do?" asked Wilfred.

"Get rid of the chauffeur and take Dot up to town to see a nerve specialist. Evidently she believes half she says about the confounded motor. How often has she been fined?"

"Only twice."

"My dear boy, you are in luck," said the Colonel.

"Our magistrate let us off easily! He has been fined himself, you know, outside his district. Pierre swore the speed wasn't over eleven miles."

"A truthful person, evidently," said the Colonel.

"Dot, not a bad judge of character, believes he is. He makes a point of always talking French to me, so I can't vouch so well for his veracity."

"No doubt he feels safer in his native tongue," said the Colonel. "I can't see your difficulty, Wilfred, and can only repeat the man ought to be got rid of. Both he and your wife are developing a sort of motor-hysteria which makes them dangerous both to themselves and the public. There's only one alternative to this view."

"You mean—what d'you call it?—spontaneous generation on the part of the motor?"

"No, I don't. I mean that Dot and her chauffeur are playing an elaborate practical joke."

"A joke of which her attack of nightmare last night—or whatever the thing was—as well as her mysterious illness this morning are a part?"

"The illness in both cases," replied the Colonel, " might be coincidental."

"I can't believe it," said Wilfred, "it isn't like Dot."

(CONTINUED ON PAGE 72.)

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THE BODY OF THE MOTOR CAR

Little Lessons in Motor Mechanics, No. 9

By Victor Lougheed

While the power plant and running gear—the chassis—of a motor vehicle generally conform to lines practically standardized, and determined chiefly by the kind of power used, motor-vehicle bodies are

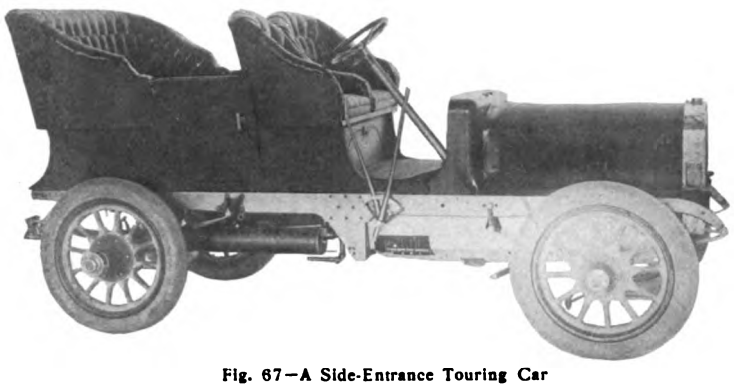


Fig. 67—A Side-Entrance Touring Car

susceptible of a wide range of modification, according to the purpose for which the vehicle may be intended.

Passenger Bodies are made in about a dozen distinct forms. There are the *buckboard,* the *runabout,* the *surrey,* the *tonneau,* the *side-entrance,* the *canopy-top,* the *Cape-top,* the *limousine,* the *landaulette,* the *coupé,* the *phaeton,* the *wagonette,* the *Pullman,* and racing and freak cars of various forms. Various of these are illustrated in Figs. 67, 68, 69, 70, 71, and 72.

Commercial Bodies, for the haulage of merchandise, for trucking, etc., and for public-service work in transporting passengers and freight, are of later development than the strictly private types of vehicles for pleasure purposes, but certainly are destined to importance in the industry.

An electric stage is the subject of Fig. 71. Of miscellaneous types of commercial vehicles, there are fire engines and fire apparatus, passenger and freight vehicles for suburban rail service, and there also are electric busses and trucks for trackless-trolley systems, in which the vehicle used is electric, of the general motor-car type, requiring no rails, but receiving current from an overhanging trolley wire. There also have been built army vehicles of one sort and another, including battery wagons, carrying tools and other paraphernalia for effecting repairs of the equipment in the field, etc.



Fig. 68—A Buggy Top

Materials of Bodies embrace a wide range. Practically everything ever used in the carriage trade has been tried, and in many cases adopted, in the construction of the new conveyance, but with a marked tendency toward modification. The use of sheet metal in the place of wood, wherever possible, is becoming established practice. Sheet aluminum, particularly, of about 1/10 inch in thickness, readily lends itself to the requirements of the body builder. By the use of wooden forms or other appliances, this metal can be easily cast or hammered into the most diverse shapes, such as the backs of seats or in various intricate panellings, with an expenditure of labor far less than would be necessary to produce the same effects in wood. Moreover, aluminum is light, and its joints are stronger than those of wood, and it is not subject to warping, though if not of proper quality it has a tendency to crystallize or crumble from the vibration due to continued jolting. Sheet iron and steel also are used.

Wood is still largely used for framing, and for this purpose does not seem likely to be superseded, chiefly for the reason that it is not only strong and easily worked, but also because it provides convenient edges to which to tack upholstery.

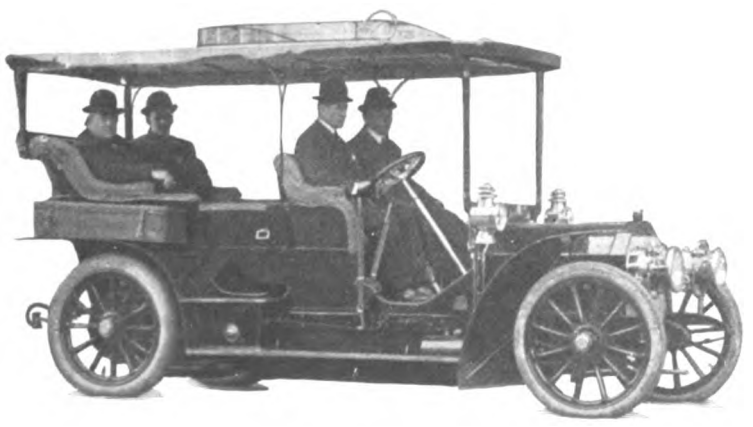


Fig. 69—A Touring Car with Canopy Top

Upholstery for motor vehicles in few cases differs materially from high-grade upholstery for any other purpose. The best leathers and fabrics generally are used for covering materials, and good springs, curled hair, etc., for cushioning.

There is some tendency toward the use of pneumatic cushions, in which the covering material is provided with an inner lining of rubber, and the whole inflated with air. There are many strong points in favor of this sort of upholstery, not the least of which are its extreme lightness and its perfect resiliency, but it has not yet progressed far in popular favor.



Fig. 70—A $425 Runabout

Finish of motor-vehicle bodies, like the upholstering, presents little that is new. The high-grade paint, oil, and varnish finishes, which have been brought to a high degree of perfection through a period of years in the carriage-maker's trade, are to be found upon by far the majority of modern motor cars. In some instances of metal body construction, however, *japan* or *enamel* take the place of paints and varnishes, being baked on, instead of dried on. The all-round excellence and durability of this sort of finish is evident to any one who is familiar with the surface that it gives on the frames of bicycles, etc.

Miscellaneous Details, for various purposes, are essential, though minor, elements of most motor-vehicle bodies.

Tops for motor-car bodies meet a wide range of requirements. There is the well-known canopy top, which probably offers the least resistance to the wind of any form of covering, and therefore is most suitable for cars of which fair speed is expected, especially if excess horse-power is not available. With the canopy top, the glass front usually is provided, but is not objectionable on the ground of wind resistance, because it can

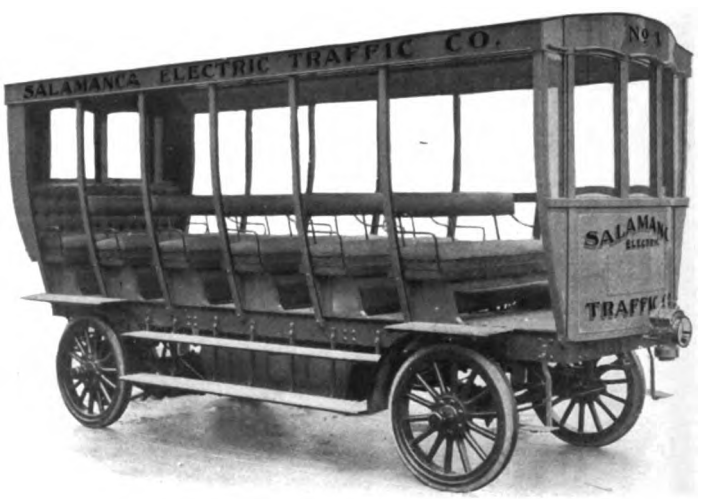


Fig. 71—An Electric Public-Service Vehicle

be easily folded up against the top when desired. There is a marked tendency to construct canopy tops with glass or otherwise enclosed rears, to keep out the dust sucked along by the onward motion of the vehicle. Side curtains, capable of being rolled closely and neatly against the edges of the top, nearly always are provided, and when down constitute a fairly efficient protection against bad weather. A recent innovation, which is coming somewhat into vogue, is the use of large, celluloid windows in side curtains, their advantage being that they are sufficiently flexible to roll up with the curtain, and yet are very perfectly transparent. The Cape hood, so called from the circumstance of its having been originated for use on South African wagons, is making some inroads into the popularity of the canopy top, chiefly because it can be folded like an ordinary buggy top, into a position behind the rear seat. It has the disadvantages of presenting a greater surface to the wind than the canopy top and of slightly obstructing side entrances. To use a glass front with this sort of top, it must be supported wholly by the dash, against which it must fold in some manner, if it fold at all. Like the canopy top, the Cape hood usually is provided with side curtains. Another top that is growing in popularity is the typical buggy top, of horse-vehicle reputation, which proves very adaptable to small, single-seated cars. A form of victoria top, protecting only the rear seat of large side-entrance cars, is variously called the cabriolet and royal victoria, and is increasing in use. In closed bodies proper, there is a growing tendency toward convertible constructions, permitting ready removal of the top and windows and doors, thus affording a winter or summer vehicle at the pleasure of the motorist.

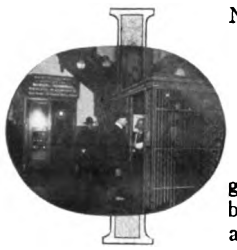


Fig. 72—A Medium-Size Touring Car

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Everything Provided but the Motor



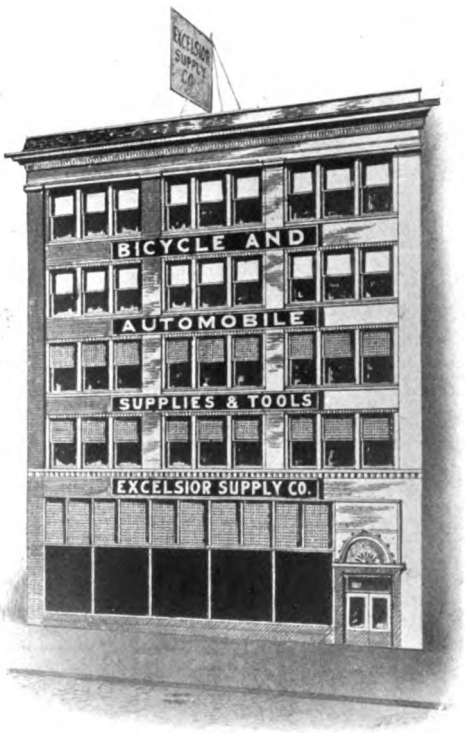
IN any consideration of the motor-car industry, the most striking facts that appear are that it is practically in its swaddling clothes, that it is considerably less than half a decade old, and that consequently the enormous proportions to which it has grown are wholly unparalleled. To the thinking observer the growth of motoring has been marvelous, especially as it is an industrial structure built entirely without precedents for guidance, and with no previous failures or successes to show the wrong or the right way. The pioneers of the industry have been seeking in the dark with all their brains and energy for the right way. The vastness of the business, as 1905 finds it, is a fine tribute to those whose names are now, and have been from the beginning, identified with the industry in its every phase.

This practically infant industry has opened new tributary channels of manufacture and business. Thousands of concerns are offered a new and growing field for goods of their manufacture, and opportunities for their entry into new lines are presented. The rubber manufacturer who found the demand for bicycle tires dwindling to alarmingly small proportions soon discovered that the new motor-car industry offered a solution to the problem of how to keep his factory going. The electrical engineer, who made spark coils in a crude way, soon discovered that the self-propelled vehicle demanded better quality, and found that his ingenuity was rewarded by an ever-increasing demand. The evolution of the spark coil resulted.

The writer has in mind an old and honored manufacturer of carriage wheels. Young competition had been gradually pushing the old concern to the background. However, the necessity for high-grade workmanship and high-class stock on motor-car wheels proved the salvation of the old concern, which once more took its place in the front rank.

The carriage man eventually became the manufacturer of motor-car bodies. The carriage and bicycle-lamp man came along with new ideas, and the beautiful motor-car lamps now seen come from their factories. And so on, the new industry introduced new lines to old concerns, and, in many cases, made the original output subservient to the latter.

In earlier motor-car days, this producing of the finished product was given scant thought. Even with little merit, so great was the demand, the sales were as a usual thing an easy matter. But the fast-increasing growth of the industry, the developing of new concerns, and the naturally resulting competition, have eventually brought forth finished products that are standardized to a great extent and that certainly are superlative in workmanship. Then, again, each year has taught the manufacturer more and more the importance of reaching the consumer or the trade more directly than through the usual channels, and to-day many sources of supply cater to this end of their business along new lines which have proven eminently successful.



A HIVE OF MOTOR INDUSTRY

Chicago, through its peculiar geographical location, to-day is easily the city of great distributors. It is the hub of a vast consuming section of the country. It is fitting, therefore, that this city have what is the greatest and largest distributor of motor-car supplies and accessories in the United States, if not in the world.

The Excelsior Supply Company can easily claim to this place. They have gradually and conservatively built up a business along these lines, from almost the inception of the motor-car industry. It has been only of late years that an organization such as theirs has become possible. The system of distribution of goods that they have evolved is one of the many new methods and new ideas that to-day makes of their establishment a model one in the business world.

They occupy a large, five-story, fire-proof, 60-foot-front building on Randolph Street, Chicago, in depth 195 feet, running through a small street in the rear, which gives them fine shipping facilities, thereby in no way interfering with the course of commerce in the front. The visitor is at once impressed with the solidity of his surroundings, which is such that the lowest insurance rate allowed in Chicago applies to them.

On the first floor are the public and private offices of the members of the concern, together with their assistants and correspondents, the bookkeepers, the cashiers, and the various other cogs that all have their places in this piece of industrial machinery. In all, there are 167 people on the pay rolls. Fifty-two ledgers are employed in keeping the



WHERE THE BUYER MAKES HIS SELECTIONS



A PERFECTLY-APPOINTED SALESROOM

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A CORNER OF ONE OF THE OFFICES

accounts of the company. These are divided into sections and a slight idea may be gained of the immensity of the business when it is known that on December 15th they contained 39,703 separate accounts. The system of bookkeeping is in itself the work of a master mind in accounting, and is an entirely original system, having been devised to insure entire simplicity and to avoid complications.

An average day's incoming mail is about 1,200 pieces. During the busy season, it usually reaches 2,000, and, on an average, 2,700 pieces of mail go out of the establishment every working day. The correspondence department is in charge of three competent and expert men with a corps of assistants, and the vast number of communications is sent out without the slightest friction of any kind. In all there are 57 people employed in the offices and correspondence departments. This large number insures absolute accuracy in all the correspondence, as it is always the object of the house to avoid mistakes, which, of course, mean delays.



HOW CORRESPONDENCE IS HANDLED BY THE WHOLESALE

Four people do nothing except open the mail and sort it out. Some of it goes to the credit men, and each customer's credit is scanned carefully and the house satisfied before the goods leave. Some of the mail goes to the cashier's desk, where the bills are properly receipted and returned whence they came. Much of it goes to the correspondence department, where previous quotations are looked up, and other letters, which have passed between the customer and the house, are laid out so that intelligent answers can be sent to inquirers. Then the order department gets its quota of the mail. Should special parts have to be made, an order goes to the foreman of the manufacturing department, where is to be found every facility for quick work. While on this subject it may be mentioned that nothing goes out of the hands of the Excelsior Company until the department heads are satisfied that it is all that the order demanded. Many of the orders call for articles not in stock, sometimes for goods not even carried by the house. A competent corps of city buyers take these in hand, and goods are bought and sent to the customer merely as an accommodation, and no charge is made for the service. Many are the curious things they have been asked to buy.

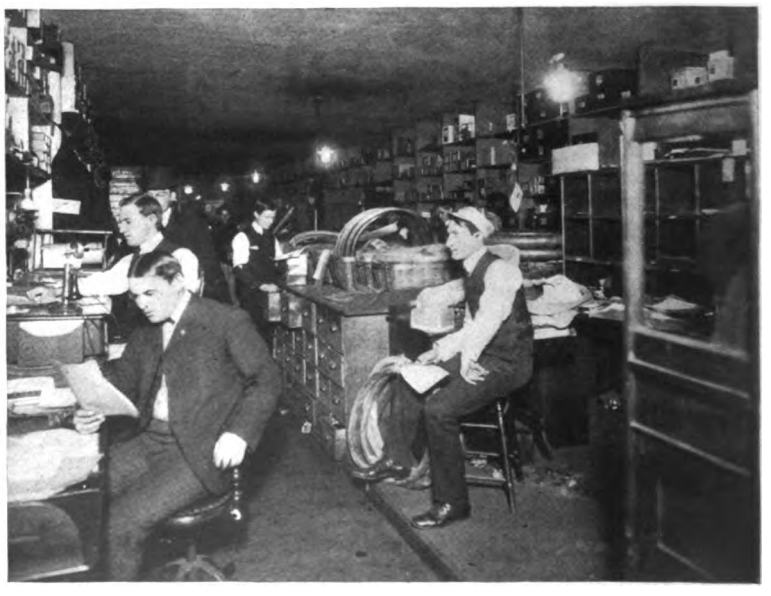
All the way through, the office is fitted up for strictly high-class business practice. Here is seen a wonderful follow-up card system. Accurate information as to what a customer may have bought, the line of goods that he usually buys, comparison of sales with the previous year, and all data that may be of service is accurately kept on file. One sees in operation all that is modern in office furnishings, such as adding machines, vertical files, loose-leaf ledgers, anti-check-raising device, pneumatic tubes for cash and correspondence carrying, and, in fact, all that goes to make an office a big end of a business enterprise instead of a makeshift, as is only too common with short-sighted concerns.

Next to the office are some beautiful display cases in which much of the floor line of motor-car accessories is kept on view. Everything from the smallest splitpin to high-priced lamps is here for inspection.

The Excelsior Supply Company are exclusive western and central distributors for Continental tires, made by the Caoutchouc Company, of Germany; Shelby tubing; Pittsfield coils; Jewel spark plugs, Solar lamps; Funke horns; Monogram oils; Sta-Rite and Comet spark plugs; Standard jacks; Excelsior caps and gloves; Whitney chains; Packard Electric cables; Kingston and Schebler carbureters; and, besides, very many accessories that they sell under their own private brand of "Excelsior." They make a specialty of foreign tires, which have obtained such a foothold in this country during the last two years, and also of other foreign accessories, and particularly on these they are in a position to quote the buyer exceedingly low prices. These circumstances have made the Excelsior Supply Company the largest jobbing house of the country in tires and standard supplies, and they have always taken pride in thoroughly guaranteeing and standing back of any goods that they may sell.

The middle of the first floor is occupied by rows upon rows of bins, wherein is kept a vast stock of smaller goods, and there is scarcely one thing about a motor car, with the exception of the heavier parts, such as engines, wheels, or frames, that cannot be found in this department. To the rear are large counters where the assembling of orders takes place. With the many diversified articles which these orders call for, excessive care is needed, and the system used by the company requires three different hands to check each order, both in receiving and leaving the building. To give a slight idea of the care exercised in this respect, it is well to say that twenty-seven operations are necessary for each order before it is finally delivered to the railroad company. Each of these operations, of course, costs money, but they make it almost absolutely impossible for an order to go wrong in making it up, or to be misdirected away from its destination.

The rear of the first floor is devoted entirely to the shipping depart-



FILLING ORDERS IN ONE OF THE STOCK ROOMS

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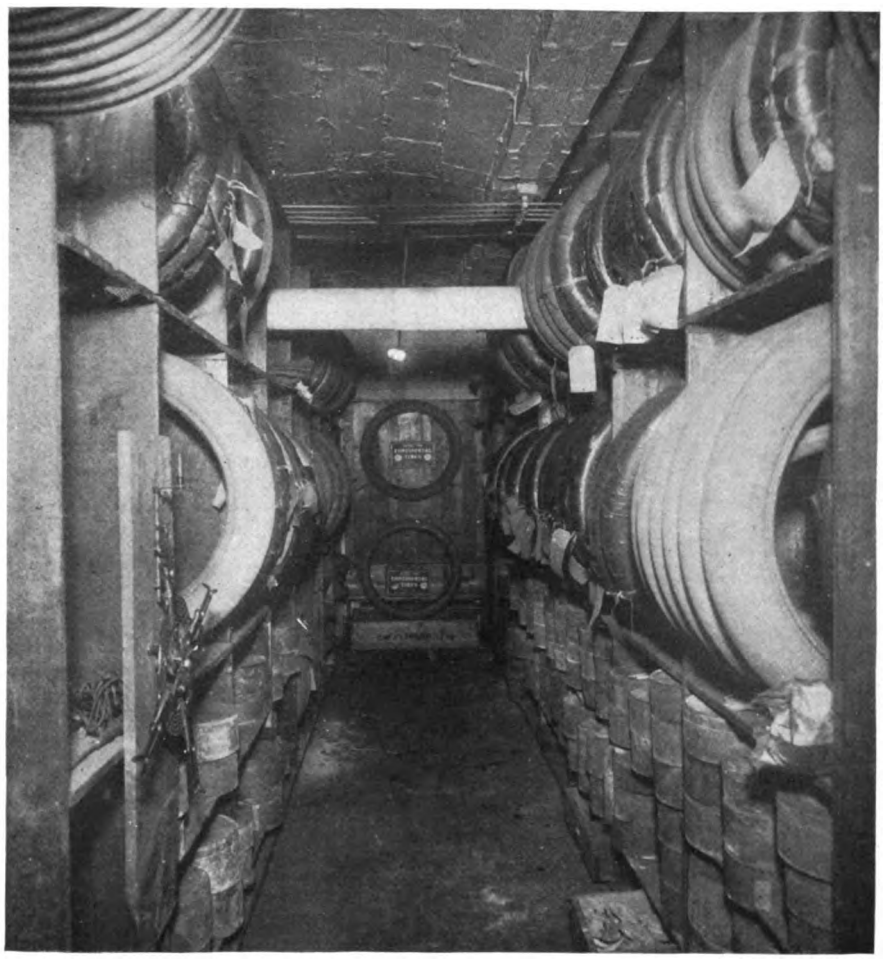


IN THE RECEIVING DEPARTMENT—OPENING PACKAGES



IN THE SHIPPINC DEPARTMENT—BOXING

ment. The house is fitted with one passenger and three freight electric elevators, and with two package elevators for quick handling. In the shipping department, all goods are boxed up and put in separate piles for each express company, to facilitate this quick handling. The platform facing the street is wide enough to accommodate the loading of seven wagons at one time. This is completely covered, so that the work of loading can go on with equal facility, either in wet or dry weather. As often must happen, some packages are left after the day's work is over, and a special wagon then is sent with them to the various express offices. All this system was inaugurated with the prime idea of facilitating the shipment of goods as quickly on receipt of order as possible, and it is a matter of record that 95 per cent. of the goods are shipped on day of receipt of order. Everything is done to save a few hours. Special messengers are sent to and from the post-office, and the time thus gained means a gain sometimes of days for the customer who is waiting for his goods in some remote part of the country.



{WHERE THE IMMENSE STOCK OF TIRES IS STORED

The new freight tunnel, recently built in Chicago, will be made use of by the Excelsior Company, and a connection with this tunnel for a 40-ton per day service is contracted for. This means even a much quicker handling of the goods than heretofore, and is a scheme whereby the customers and the Excelsior Company economize time.

Incoming goods are quickly sent from the receiving room on the electric elevators and delivered to the respective departments, and the quickness with which this is done can be only appreciated by the visitor who has a chance to see with his own eyes.

In the basement are stored the heavy materials and heavy hardware. Rack after rack is stored with tubing here, from one-eighth of an inch to six inches in diameter, and from one inch in thickness to 22-gage. Stacks of motor-car rims occupy one corner of this large basement, while heavy steel and iron pieces of all kinds are conveniently stored in a handy way, ready for rush orders. The electric sidewalk elevator makes

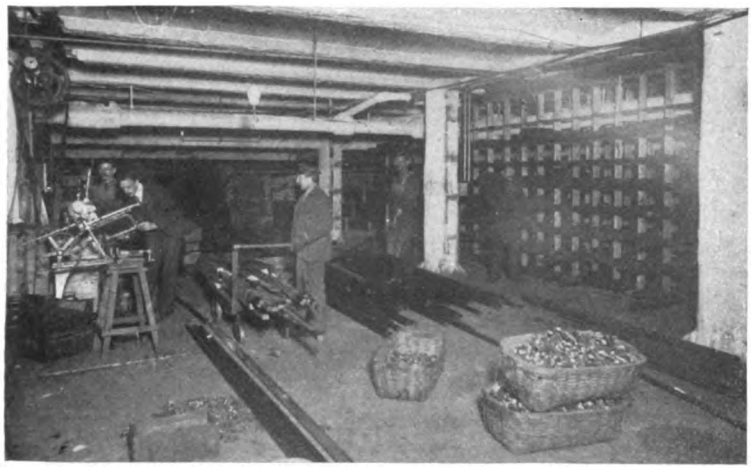


EXCELSIOR WORKERS NEVER ARE IDLE



ANOTHER STOCK ROOM—FILLING ORDERS

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CUTTING STEEL TUBES IN THE TUBE DEPARTMENT

access easy to the street, and the hands of this department still speak with pride of a day when they took 19,000 pounds of heavy material down through the chute and stored it in one hour and fifty minutes.

Above the main floor is the stock room, for heavy and bulky parts and for the surplus stock which is not kept on the first floor. Here are stored away thousands of articles, this floor being used as a supply depot for the floor below.

The next floor above is devoted partly to the machine shop, where are manufactured many articles that the company handles and also many out-of-date parts that cannot be bought in the open market. Piles of trunks used by the traveling force, each properly labeled, are stored here out of the way, and behind glass partitions in one corner one can see three industrious men, who, day in and day out, work in the advertising department, which has done so much to add to the publicity of the Excelsior Supply Company. Here is got out the catalogue for which the company has been noted for years, and the 1905 book promises to eclipse anything in this line that has been yet produced. One who has not been in a position to make up a catalogue scarcely can realize the enormous amount of work that is put into these very handy commercial books. In the first place, they must be very accurate, both as to description and prices. They must be tastefully arranged, various cuts and data must be collected, and in the end the printer has to be forced to produce what the advertising man has planned.

The Excelsior Supply Company lists and illustrates thousands of articles. The description and the price of each particular one has to



A VIEW IN THE MACHINE SHOP

be carefully scanned and thoroughly gone over for any errors, and the department is always a busy and industrious place. This catalogue is issued once a year, and periodical supplements containing the newest things are issued when occasion requires, so that all Excelsior customers are sure of being kept well posted upon all the novelties.

The Excelsior Supply Company began in a very moderate fashion, on January 16, 1876, at No. 81 Jackson Street, Chicago. At that time, Mr. Robie was salesman, stock clerk, receiving clerk, and everything else rolled into one. Mr. Robie's business consisted entirely of sewing-machine parts. The business grew rapidly and larger quarters were needed and obtained.

When the bicycle industry grew to good proportions, this business was taken up, and the Excelsior Company soon became the largest factor in bicycle sundries and bicycles in the United States. They imported one of the first safety bicycles ever brought to this country. It was the "James," a name long since buried in oblivion; but at that time, as can be imagined, it created quite a sensation in Chicago.

Then came motor-cars and machinery supplies, and to-day this company does an enormous business in connection with these four articles.

A curious feature in connection with the company's progress is the fact that that even to-day, after a quarter of a century has passed, they still have on the books some of the original trade that dealt with Mr. Robie, Sr., in the very early days of the business.

A large force of traveling men consistently covers the vast territory that extends from Buffalo as far as the coast and as far south as the Gulf. The Excelsior system of travelers has been built up with the same care that has been exercised in the home establishment. Each traveler covers a certain territory about once in thirty days. To facilitate his movements, he lives in the section which he covers. For instance, the Wisconsin men live in Milwaukee; the Ohio man, in Columbus; the Michigan man, in Battle Creek. This allows them a home coming after very short intervals on the road, and in this way the company gets the best work possible, the salesmen avoiding many long jumps to Chicago and keeping in better touch with the trade.

The traveling man for the Excelsior Supply Company enjoys many unique advantages. Though traveling for a jobbing house, he still is in a position to quote exactly the same prices as are asked by the manufacturers. He can guarantee prompt deliveries, and he can absolutely vouch for the quality of the goods, for there are none but standard articles handled. He is very safe in the line that he has to place before the customer, and, as the stability of the Excelsior Company is beyond reproach, he is in a position to represent the firm with pride.

The Excelsior Company has three separate lines of distribution in each of which it does a larger business than any other motor-car supply house. In the jobbing business—the supplying of the trade in quantities—it is known all over the country as the house that can supply at the best prices the best goods of any kind akin to the motoring industry. In supplying the consumers who go to the company's office

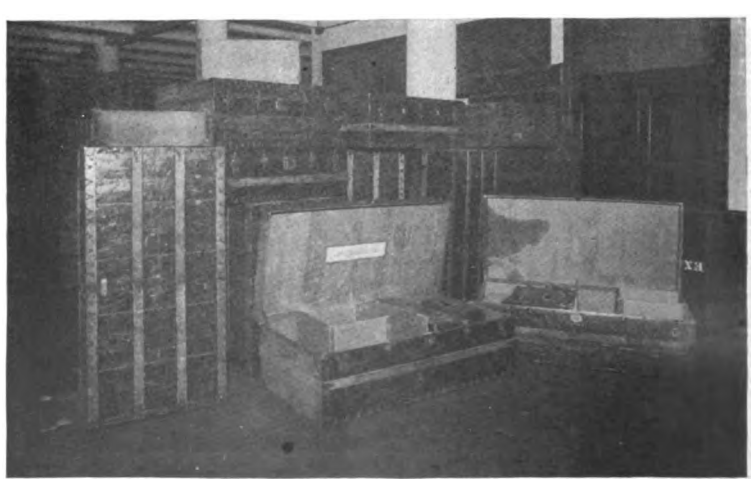


ROWS OF FILING CABINETS—BUSINESS SYSTEM EXEMPLIFIED IN ITS HIGHEST FORM

for goods, it is the focus of all the motor-car owners for a hundred miles around Chicago. Its enormous mail-order business with consumers, and its wonderful system and facilities make it indispensable to every motorist in the country. No one who has not visited this company's place of business and has not examined its mail orders for proofs can realize the tremendous business done in this way. The great confidence of its customers in the company's ability and conscientiousness is astounding to the uninitiated, but not so surprising when one knows that this mail-order business is and always has been conducted along right lines.

The company tries in every way to satisfy the customer. The fact that they have 39,000 book accounts shows how the customers are retained, and how "energy" is ever the watchword of this enterprising concern, the volume of the business being a slight tribute to the hard work in the past that has built up success.

The Chicago business man throws convention aside. He usually does business in a broader way than the Eastern man, is more open to conviction, is quick to grasp the good points and equally quick to condemn the bad points of an article. He will take a chance of selling new goods where his more conservative Eastern brother hesitates, and the result is that the Chicago's man's way of doing business has built up establishments of which the average dweller of the East has no idea. Chicago boasts to-day of what are undoubtedly the largest distributing houses in the world. This is true in dry goods, carpets, mail-order houses, and, in fact, in all lines of business, and what one of these large houses is to its respective line, so is the Excelsior Supply Company to the motor-car accessory business.—[*Adv.*



READY FOR THE ROAD

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Diamond

1905 DETACHABLE CLINCHER TIRES





WRAPPED TREAD CONSTRUCTION

"SO GOOD THERE IS NO OCCASION TO TAKE THEM OFF."

Tires of this construction will give from three to five times greater service than any other.

After thousands of miles of use their remarkable strength is unimpaired and the tough, elastic tread and walls not so much as marred.

Even punctures have been so rare as practically to cease to be a factor.

All occasion to remove tires from wheels is reduced to a point of insignificance.

Five hundred sets now in use have without a single exception proved the presence of all these points of EXCLUSIVE EXCELLENCE.

Note the absence of mold marks on the tread. Let us tell you what this means.

The Diamond Rubber Company

BRANCHES:
NEW YORK, 15 Warren Street.
NEW YORK, 1717 Broadway.
BOSTON, 174 Columbus Avenue.
PHILADELPHIA, 304-306 N. Broad St.
BUFFALO, 715 Main Street.
ST. LOUIS, 3966 Olive Street.
DETROIT, 310 Woodward Avenue.

AKRON, O.

Our Book, "The Care of Motor Tires" is now ready. Yours for the asking. The most complete tire book published

BRANCHES:
CHICAGO, 167-169 Lake Street.
CHICAGO, 1241 Michigan Avenue.
MINNEAPOLIS, 611 First Avenue S.
SAN FRANCISCO, 608 Mission Street.
DENVER, 1735 Arapahoe Street.
CLEVELAND, 323 Huron Street.

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COLUMBIA automobiles are wholly made in our own works, insuring that uniformity of excellence in design, materials, and workmanship, which has built up the Columbia name and reputation. The COLUMBIA line for 1905 includes 35-40 H. P. 4-cylinder Gasoline Cars with Side Entrance Tonneau, Royal Victoria, Landaulet, or Limousine bodies, $4,000 to $5,500; 18 H. P. 2-cylinder Gasoline Side Entrance Tonneau, $1,750; 12-14 H. P. 2-cylinder Gasoline Tonneau, $1,500; Electric Victoria-phaeton with hood and "de luxe" features throughout, the handsomest and most efficient light electric carriage ever offered to the public, $1,350; light Electric Runabout, $900; Electric Town Carriages of the coach class and Commercial Vehicles.

We issue three catalogues describing respectively Columbia Gasoline Cars, Columbia Electric Carriages, and Columbia Electric Delivery Wagons and trucks. Both in print and in illustration these are the most artistic automobile books ever distributed. In writing please state which Catalogue is desired.

ELECTRIC VEHICLE COMPANY
HARTFORD CONN
134 WEST 39TH ST NEW YORK 1413 MICHIGAN AVE CHICAGO
74 STANHOPE ST BOSTON
MEMBER OF ASS'N LICENSED AUTOMOBILE M'F'RS

OVERLOOKING THE HUDSON RIVER.

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Anderson & Price Co., Proprietors

RESTAURANT AND CAFÉ.

Club Breakfasts, Table d'Hote Dinners or a la carte Service.

Strictly Fire-proof, Up-to-date Apartment Hotel, Five Hundred Rooms.

Suites of One Room and Bath to Six Rooms, Two Baths.

SPECIAL ATTENTION TO LADIES TRAVELING ALONE.

L. H. BINGHAM, Manager.

The Wonderful Monster

(*Continued from page* 65.)

"The only other explanation I can suggest is that motoring has brought a new disease on the world."

"Nonsense!" said his nephew.

"If you remembered your Horace," replied the Colonel, "you would not have forgotten what occurred when Promotheus stole fire from heaven. Motors are evidently quite as dangerous to novices as fire."

Wilfred looked at the Colonel, conscious that the latter considered him rather "a feeble ass" for submitting to the joint tyranny of his wife and her weird chauffeur. For this opinion he could make excuses. Still the step his uncle suggested he dared not take. Dot would never forgive him; moreover in her present overwrought state it would be dangerous. He glanced out of the window to the garden, where, through the bare branches of the trees, the northwest wind was whirling the snow. Thank goodness, the storm had put an end to motoring for that day, he thought. Then he turned to the Colonel and said, "I wish you'd have a talk with Dot and see what you can make of it."

"Very good," said the Colonel.

Then they returned to the hall, where the big logs were blazing and the men and women deep in bridge. Dot had just declared no trumps on two aces and an unguarded king.

Just before she went to dress for dinner, the Colonel found an opportunity of speaking to her alone in the embrasure of one of the heavily curtained windows. The storm had ceased; the wind had piled the snow into small drifts wherever a bank gave shelter; the drive, in the moonlight, stood out yellow and clear; the stars were shivering in the blue black sky.

"Dot," said the Colonel, "Wilfred's worried about you."

"He needn't be," said she.

"But he fancies you're—well, not quite yourself."

Lady Beeston disliked the phrase, as she disliked all awkward things. She raised her eyebrows in the becoming, but disdainful, interrogation which experience had taught was her most effective reply to argument.

"Not quite yourself," he repeated, quite undismayed.

"What did you advise?" she asked.

"To get rid of your stoker, or whatever he calls himself," said the blunt Colonel.

He was blunt and abrupt because he fancied it the best manner of dealing with the lovely, hysterical ladies with a taste for rhapsody.

"Surely you don't mean Pierre Cassagnac?" she replied.

"I do, if that's your man's name. I see by the papers he has been fined twice, and now I find he has so little control over his motor that it goes out for a run on its own account at night. Every one is talking about—the phenomenon, I suppose I ought to call it, to be in the fashion."

Lady Beeston looked at her husband's uncle, no longer in doubt how to class him. He was obviously a fogey ambitious to appear facetious. How could such a person understand what the Wonderful Monster was to her, or she to it, or Pierre Cassagnac to both? How could she expect Colonel De Vigne to understand the passion for Motion which it shared with herself and Pierre? Discussion, she felt, was hopeless. Had she not stepped, or rather rushed with her panting, heaving car into shadowy and beautiful realms whither no grizzled Colonel in the King's service could hope to follow her? When excitement did not carry her away, Lady Beeston could shield herself behind whatever mood seemed most convenient for the moment; so she became, simple, amiable, good-natured and practical.

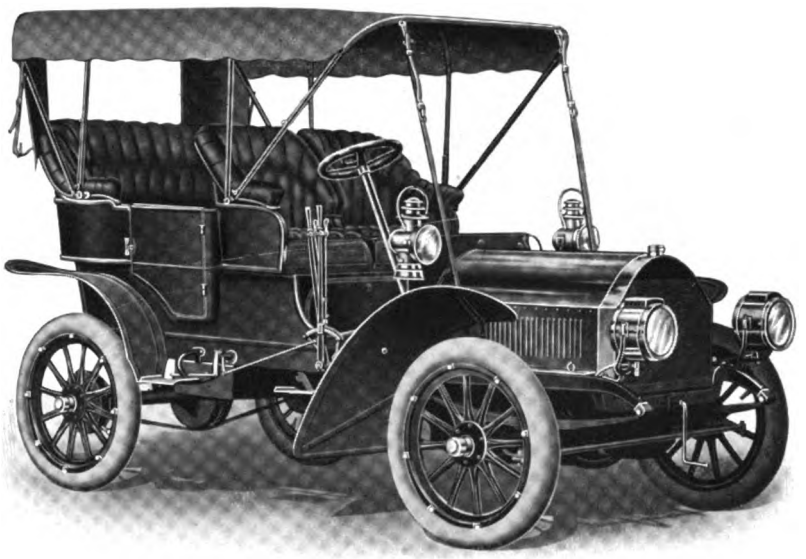
"Poor Wilfred!" she exclaimed, laughing. "I suppose I rather frightened him with my rhapsody. I'm worse than the Arab of early Victorian poetry over his steed. The fact is, Colonel, he is in constant terror of a smash-up for me; he can't realize that Pierre has a positive genius for motor-cars. If he did he wouldn't worry whenever we are half an hour late. And as for this odd story about the

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"STEVENS-DURYEA"

NEW 20 HORSEPOWER, 4 CYLINDER
TOURING CAR

MODEL R



It is universally conceded that the **STEVENS-DURYEA** Runabout (Model L) is in a class by itself. Therefore, be sure to investigate the claims we make for our latest notable offering

Ask your Agent!

Great Strength

High Power

Light Weight

Eminently suitable to the requirements of the Tourist

Send for detailed descriptive matter, illustrating models L and R

LEADING FEATURES: Aluminum Body—Side Entrance Tonneau—Capacity, 5 persons—Pressed Steel Frame—Three Speeds and Reverse—Three Brakes—Four Individual Cylinders—Bevel Gear Drive—Water Cooling—Standard Equipment—Weight, 1650 Pounds

Price, - $2500.00

J. STEVENS ARMS & TOOL CO., 712 MAIN STREET CHICOPEE FALLS, MASS., U. S. A.

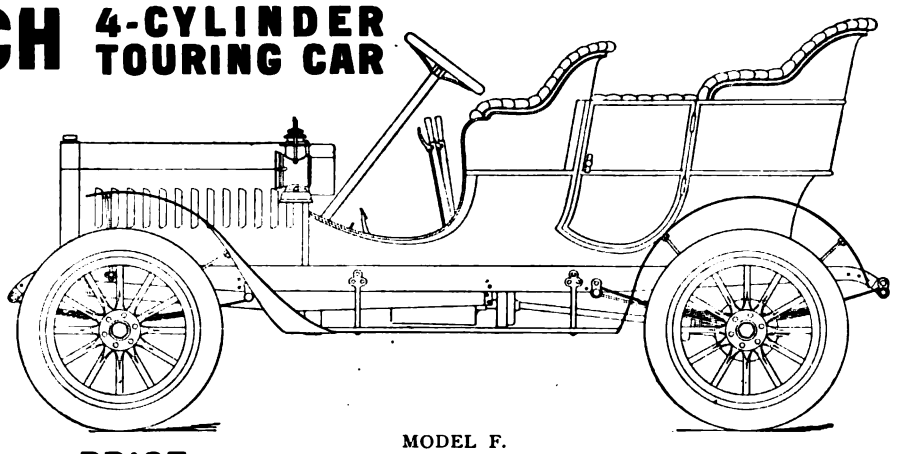
Members Association Licensed Automobile Manufacturers

THE PUNGS-FINCH 4-CYLINDER TOURING CAR

Motor—four cylinders, 20 H. P.
Sliding Gear speed change.
Three forward speeds and reverse.
Bevel Gear transmission to divided rear axle.

Wheel Base, Model D, 80 inches.
" " " F, 97 inches.
Tires, Model D, 30 x 3½.
" " F. 32 x 3½.
Weight, Model D, 1750 lbs.
" " F, 1825 lbs.

Side or rear entrance tonneau, seats four or five passengers.

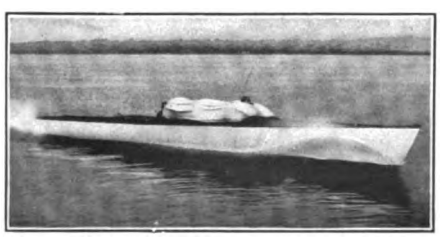


MODEL F.

PRICE:—

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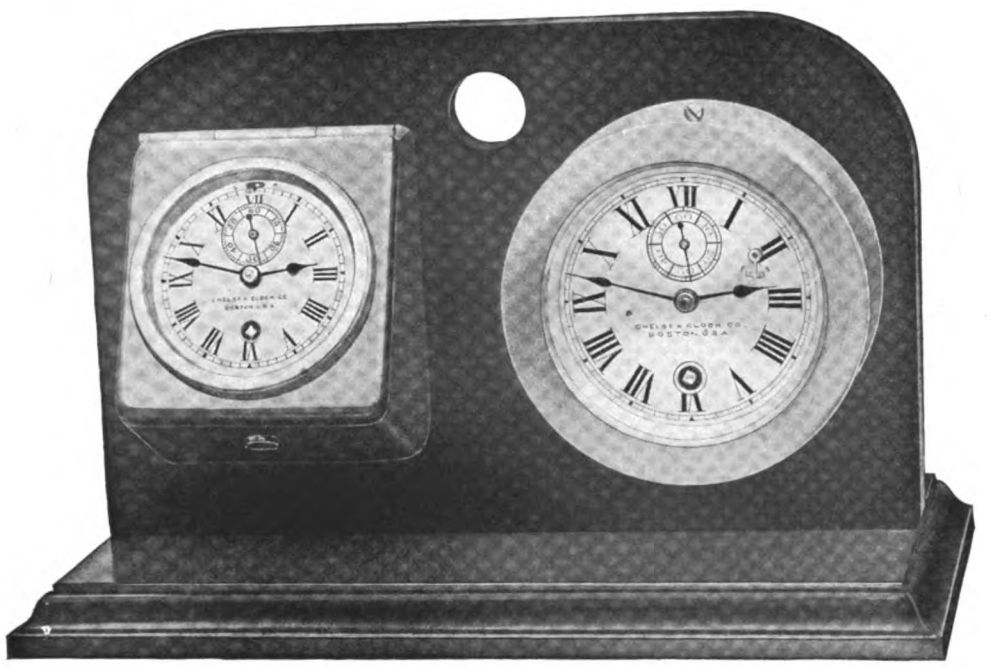
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driverless motor, I've no doubt when I talk it over with Pierre to-morrow there will be quite a simple explanation. The dear fellow (Wilfred, I mean, of course) is so imaginative. I don't mind confessing to you (only you mustn't tell any one) that I was tempted to encourage a ghostly atmosphere suitable to Christmas-time in this old house. I don't want you to think motorism has driven away all the eerie things that flutter about in dark passages of ancient manor-houses, or under the sinister shadow of the wintry trees. But I must go and dress."

She gave him a smile and mounted the dark oak staircase. He heard her silken rustle long after she had disappeared.

Lady Beeston was annoyed with her husband for discussing what he was evidently beginning to regard as "symptoms" with Colonel De Vigne. She was not ashamed of her attitude toward her motor-car or the chauffeur, the only being in the world who could fully appreciate the sentiment, but she suspected that Wilfred had made her look ridiculous in the eyes of his uncle. To appear as a dazzling and beautiful eccentric is one thing, to be represented as a strange woman with obscure mental "symptoms" is quite another. Follies are only glorious when their scale is superb. When, therefore, Muriel Cunningham entered her room she was tempted to complain.

She had put on a charming clinging dress of mauve and pink and stood in the firelight, a triumph of artistic millinery. The beautiful reflection of herself soothed her ruffled feelings. It was, indeed, one of those victories of matter over mind. Crudely interpreted, the thought swaying her was this: "Whatever view Colonel De Vigne may take of my conduct ought not to touch any woman as beautiful and brilliant as myself."

Muriel, slim and graceful in black panne, looked at her friend admiringly and read her smile, which was dimly self-conscious. "Do you know, Dot," she said, "it's possible for some women to find in the beauty of their clothes a comfort that some quite serious people miss in their religion."

"That's the philosophy of millinery," returned Lady Beeston, "only the system has yet to be worked out."

The two young women stood in the dancing fire light a moment in silence, enjoying the warmth. Outside an icy wind was shaking powdery snow from the broad branches of a cedar.

"What," Dot suddenly said, "would you do if your husband set on his uncle to ask you why you were 'not quite yourself?'"

"I can never think of myself as being 'attached' to a husband," replied the other, evasively, knowing how dangerous it is in such cases to express quotable opinions.

"You needn't be afraid that I shall tell Wilfred what you said," Dot replied, "but doesn't the phrase 'not quite yourself' hit you like a bludgeon?"

"Why? Because it's used sometimes as a euphemism for imperfect sanity?" said Muriel.

"No, because it suggests the sort of thing people are saying about you."

"But has Colonel De Vigne been lecturing you about your extraordinary enthusiasm for motoring?"

"He would have if I hadn't dodged him behind a shield of blatant common sense."

Muriel looked at her friend.

"You won't be angry with me, Dot, if I tell you what I think?" she said.

"I'll try not," Lady Beeston answered.

"Well, if Colonel De Vigne warned you about this growing infatuation I think he was quite right.

"Has the Colonel spoken to you, then?" Lady Beeston's beautiful eyes grew harder as she spoke.

"Gerald Morten spoke of it to me," Muriel Cunningham replied.

"Gerald!" Lady Beeston exclaimed. "Had not you and he something nearer your own interests than my crazes to talk about?"

Muriel blushed faintly.

"Perhaps," she said, "you noticed Gerald and I went out after tea when the storm ended."

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All users of Gasolene Automobiles and all intending purchasers are hereby notified that there has been a

COMPLETE SURRENDER BY THE PANHARD & LEVASSOR COMPANY, OF PARIS, FRANCE,

and the members of that corporation who represent it in New York City to the rights of the Association of Licensed Automobile Manufacturers, under the Selden patent,

BY THE RECOGNITION OF THE VALIDITY OF THE BASIC U. S. LETTERS PATENT NO. 549,160, GRANTED TO GEORGE B. SELDEN, NOVEMBER 5, 1895.

A capitulation has been made also by the present American representatives of the Mercedes automobiles hereinafter named.

In the future all **PANHARD MOTOR CARS** brought into the United States by or through Panhard & Levassor or Smith & Mabley, and all **MERCEDES CARS** brought in by Allen, Halle & Co., through their representatives, Smith & Mabley, all of New York City, **WILL COME IN UNDER LICENSES** granted by the Electric Vehicle Company of Hartford, Conn., under the Selden patent, with the authorization of the Association of Licensed Automobile Manufacturers.

Suits had been brought and vigorously prosecuted against the representatives of the Panhard and Mercedes cars for infringement of the basic Selden patent, No. 549,160, by the unlicensed importation of the cars named, and this surrender now clears the way for these makes of foreign cars to have license plates attached to them when sold by or cleared through the parties named herewith.

The royalty on all Mercedes and Panhard cars heretofore brought in by the parties named since January 1, 1903, having been adjusted, Selden license plates will be furnished the present owners of such cars upon application to the agents.

THE FULL LIST OF LICENSED IMPORTERS (who represent all the leading makes of foreign cars) from whom cars may be purchased, or through whom they may be cleared in any port of entry, without liability of suit for infringement of the Selden patent, is now as follows:—

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ALL PERSONS ARE NOW FINALLY WARNED that suits will be brought against firms and individuals who import hereafter any gasolene automobiles of any foreign make through any entry port of this country, or who buy any foreign made gasolene automobiles not imported by or cleared through one of the licensed importers above named.

William A. Redding, Esq., Attorney, of 38 Park Row, New York City, has been authorized to make adjustments with persons who have in the past unwittingly infringed the Selden patent by the importation or purchase of unlicensed foreign made automobiles and who choose now to guard themselves against prosecution.

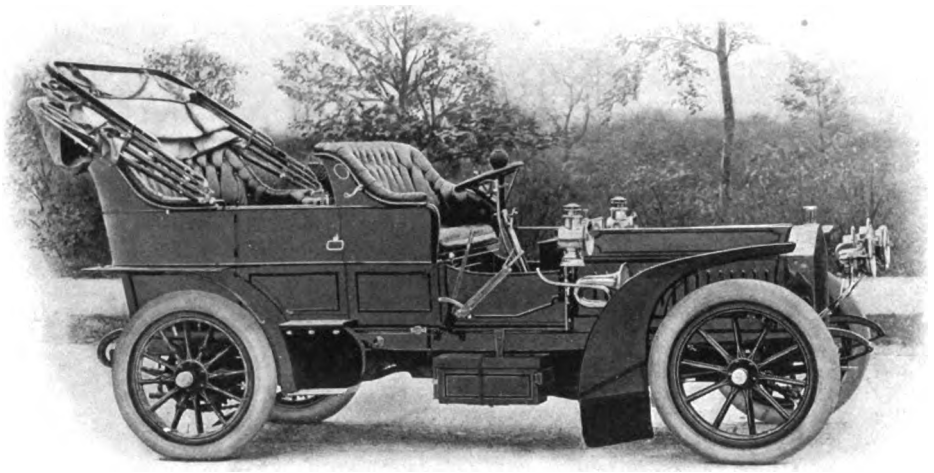
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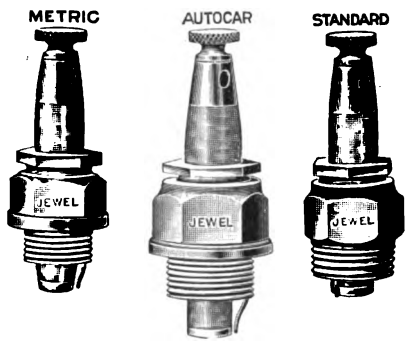
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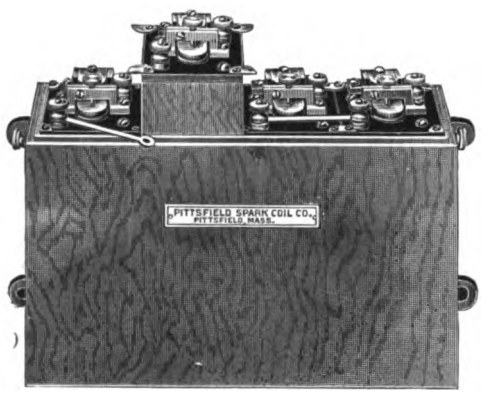
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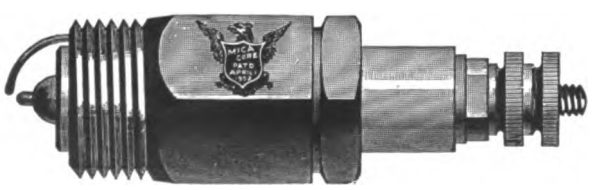
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"I did," said Lady Beeston, meaningly. "It raised certain expectations, you know"——

"Never mind them for the moment," Muriel interrupted quickly. "We had something more serious to think about. When we were approaching the new motor-house, where your 'Wonderful Monster' lives, we heard him snorting—one of those weird noises between a gasp and a cough and a smothered oath which only motors can make, you know."

"He does swear!" Lady Beeston assented.

Muriel Cunningham paused to see the effect of her words on her friend. Suddenly her eyes became fixed and her mobile mouth appeared more rigid.

"Go on," she said, impatiently; "go on. Of course the Monster can talk. Pierre even pretends he can understand the language. He is to teach me!"

Lady Beeston had evidently forgotten the delight her beautiful new dress had lately given her. Once more she was in the grip of her strange passion.

"But," she resumed, "you never told me whether the Monster was talking to himself."

"We approached the place," Muriel continued, "expecting to see Pierre drive out, but the door was closed. There was a light within, however, and when we were near enough we heard a voice within. Pierre was talking to it! Every now and then we heard his voice between the thick pants of the motor. We heard him laugh—and the thing seemed actually to laugh, too! It was horrid, Dot."

Lady Beeston had now recovered the self-control which, for the moment, she appeared in danger of losing.

"Of course, Pierre was only grooming the Monster. To-morrow we are going for a run before lunch," she said, quietly.

"On Christmas Day!" exclaimed her friend.

"Yes. Why not?" she asked.

"Because," the other replied, nervously, "because you can't trust that man."

Lady Beeston tried to laugh naturally, but succeeded ill.

"Why," she protested, "Pierre Cassagnac is the only chauffeur I would trust myself with—I mean, at my speed. Why do you say I can't trust him?"

"Because," Muriel replied, "Gerald Morten and I heard him say *'Vive la mort, ma belle! Vive la mort!'* He must be mad."

Lady Beeston, remembering the words, turned deadly pale; the other went on excitedly.

"When Gerald opened the door the machine stopped panting and roaring. Pierre turned round and took off his cap politely and said, *'Bon soir, Monsieur,'* as though a duet with a motor-car were a matter of every-day occurrence!"

"So it is," returned Lady Beeston, simply. "He talks to it as some grooms talk to their horses, only it understands him better."

"Dot!" cried the young woman.

"My dear girl! I'm perfectly sane; only please do allow some scope for the play of the imagination. If Pierre and I try to believe the Monster is alive, as children do with their dolls, please don't imagine either or both of us are mad."

"But what does it all mean? Do you know what Gerald Morten thinks, Dot?"

Lady Beeston reflected a moment.

"Gerald used to understand me pretty well once," she answered. "What does he think?"

"He believes that Pierre is hypnotizing you."

"How original of Gerald! Isn't it more probable that the Monster has bewitched us? But, my dear Muriel, hasn't it occurred to you that for a woman who has learned to cultivate a taste for novelty as though it were a fine art, that I'm a very normal type? Has it never occurred to you that the whole business, beginning at my rhapsody and ending at Pierre's duologue with the Monster, might be part of an entertainment got up for the amusement of our guests? Remember, we have to give presents all round to-morrow. Might not my comedy—or it is a melodrama?—be merely got up as a contribution to excite your wonder?"

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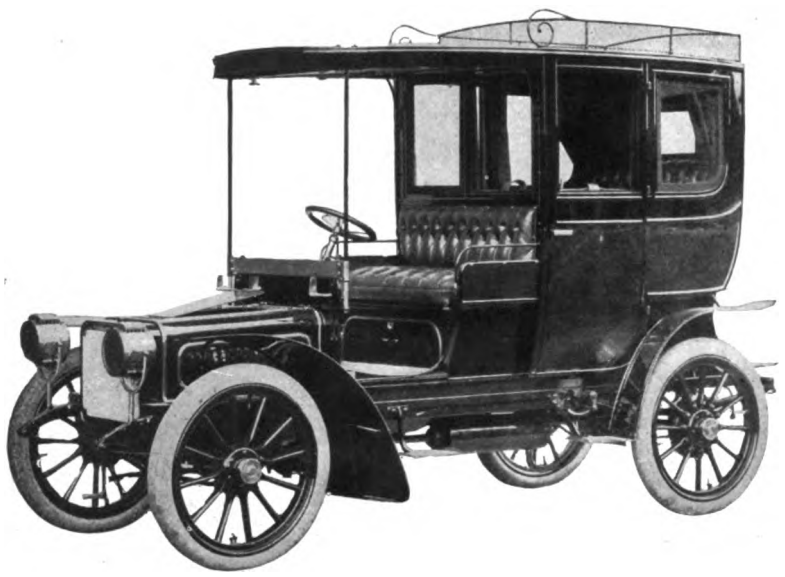
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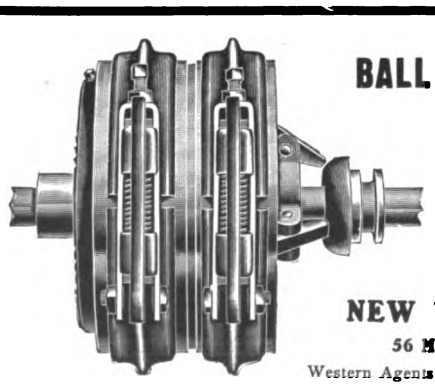
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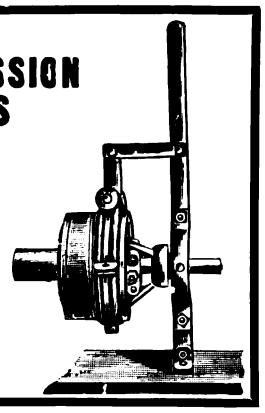
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as a relief to Muriel Cunningham's mind.

"Well, you must admit that it would be a triumph to make you all believe my Monster had really come to life. But if you dare hint what I have suggested, Muriel, I'll never forgive you."

"Mayn't I tell Gerald?"

"No. All you may tell him is that you're convinced I'm not hypnotized. Now we'll go down to dinner."

"But how did such an idea enter your head, Dot?" Muriel asked, as they were descending the stairs.

"Heaven knows—unless it were Gerald's satirical sketch," was the reply.

"Don't let Pierre see that sketch," said Muriel.

"Why not?"

"Because the chauffeur in it looks more like a demon than a man, and Pierre is scarcely a person I should care to offend."

"Nor I," replied Lady Beeston, with a slight shiver.

Just before dinner was announced Gerald Morten found an opportunity of speaking to Miss Cunningham.

"Did you find out what was wrong with Dot?" he asked.

His manner was anxious—over-anxious it seemed to her.

"I shouldn't be surprised if your sketch started the whole business," she replied.

"Colonel De Vigne fancies she's playing an elaborate joke on us," said Morten, "but Bertie Farquaharson, who's a psychical researcher, and all the rest of it, declares that's an explanation suggested by Dot herself to hide what is happening! I don't like it. I don't like it a bit. Farquarharson believes she's under a spell; but then he's the sort of fellow who can believe anything he likes."

"Did you tell him what we heard Pierre saying just now?" she asked.

"No. It's the sort of thing best not told to a fellow whose credulity is wide enough to admit the possibility of spontaneous generation in a brand new motor car! Let's keep off the subject at dinner if we can, and watch poor Dot!"

To watch Lady Beeston at dinner, however, was only to ascertain how brilliant and amusing she could be. She perceived that a certain impression had been produced and consciously or unconsciously decided that it must be dispelled because it made their guests unpleasantly thoughtful.

When reference was made to her rhapsody of the previous evening she pretended that it was a plagiarism from an article in a French newspaper on the moral dangers of cultivating a love for speed.

"It certainly was most awfully clever," said Lady Farquaharson.

"It took me two whole hours to learn it," said Lady Beeston.

"It was something more than mere rhetoric to my mind," said Bertie Farquaharson. "Some clever fellow—I forget who it was—fell in love with the Sphinx, or wrote a book about a man who did, I forget which, and it doesn't matter. It is much more subtle and wonderful to fall in love with a 20 h. p. motor."

"It is the sort of thing too much worship of science will lead to," said Colonel De Vigne.

"As a weakness, at all events, it would be more original than falling in love with the riding master, which I understand was a common practice with the last generation."

But suddenly in the distance they heard the throbbing of the motor and all, with one accord, turned their eyes on Lady Beeston. With a roar and hoarse, derisive screech it tore down the avenue.

"It's Pierre," said Lady Beeston.

"Where's he going?" asked her husband.

"To the station for me," she replied.

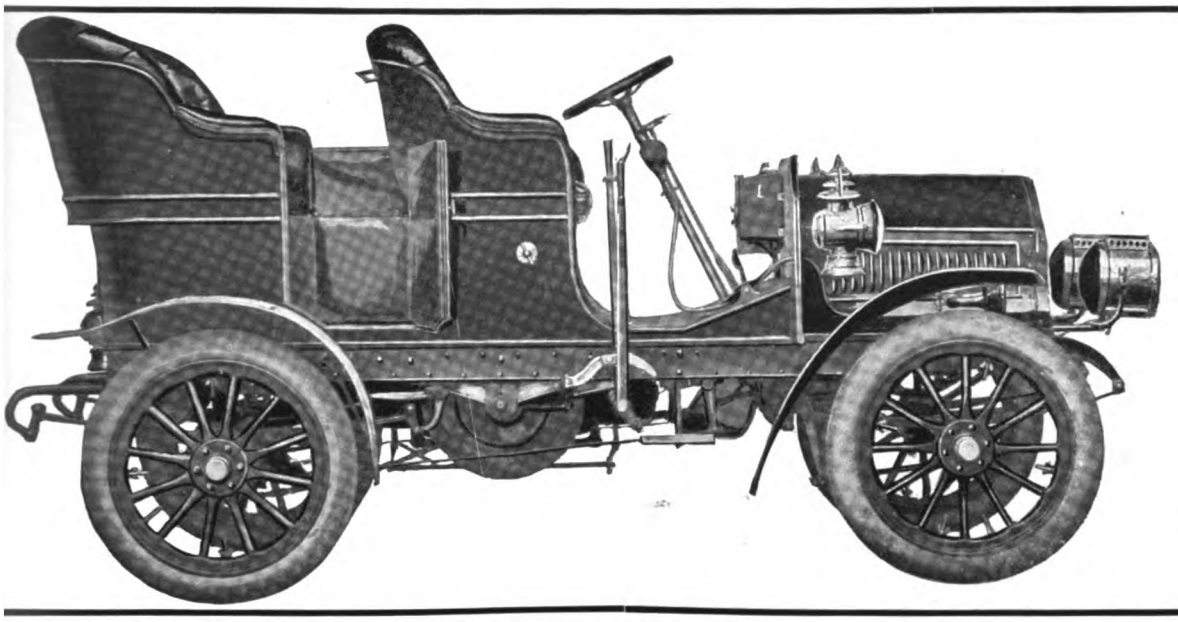
"But the roads are impossible—like ice," he protested; "you oughtn't to have sent him, Dot."

"The roads are as safe as they ever are here. The wind has cleared them of snow. There has been no thaw. Pierre and his Monster are safe. You haven't forgotten what tomorrow is?"

"Christmas Day, of course," said her husband.

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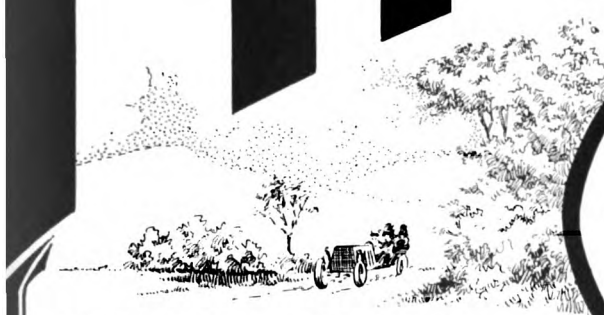
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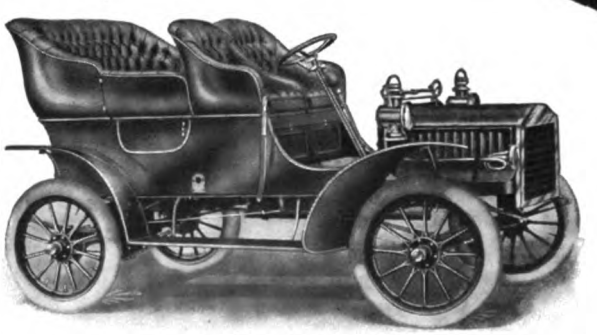
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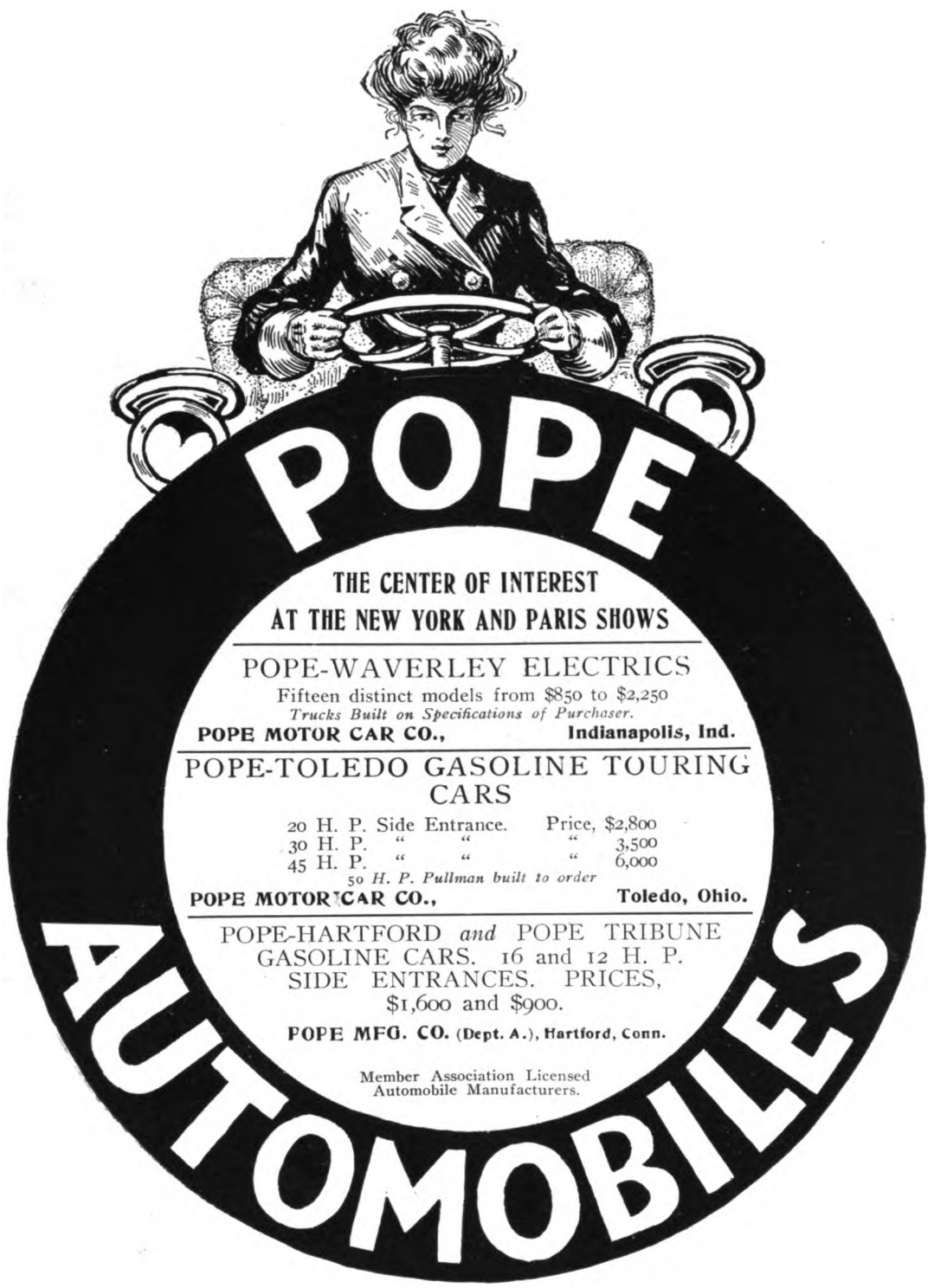
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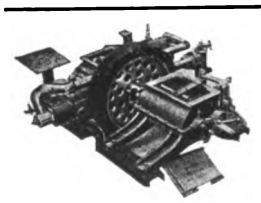
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"Well, Pierre has gone to bring back Santa Claus! I hope you are all prepared with your presents," said Lady Beeston. "I shall be when Pierre returns. Don't forget to hang out your stockings!"

The sense of suspense which they all had more or less felt vanished as the conversation found the channels into which Gerald Morten suspected Lady Beeston of steering it.

Alone, so far as he could see, Morten felt restless and suspicious. When dinner was over and the ladies had gone, he left the men and, wrapped in the thickest coat he could find, went out into the icy night.

The doors of the motor-house were open. He stood and waited. At last he heard at the far end of the avenue the sinister throb of the approaching car. Standing in the shadow he watched the fiery eyes approaching through the black night. This time the chauffeur was in his place. The car slackened and swung in the narrow doors with splendid accuracy.

Pierre Cassagnac got down; the fiery heart of the car throbbed and pumped till a touch of his hand silenced it.

"Bon soir, Monsieur," he said, quietly, when he saw Morten.

"So you have been down to the station for a parcel for Lady Beeston," said the other.

The chauffeur started.

"Pardon, Monsieur?" he replied in fair English. "Did miladi say so?"

"Yes."

"That I was going on her service?"

"Yes. I understood she sent you to the station for a parcel."

"Ah! There is nothing come. You will perhaps have the goodness to inform my lady I put him to bed."

The chauffeur gave Morten a look of veiled defiance, and began to busy himself with the car. Morten returned to the house convinced that Lady Beeston had lied to screen the man.

Eighteen months ago he had loved her. The shock was painful. What could there be between them? How had this man acquired such influence over her? That night he stopped her outside the smoking room and said, reproachfully: "Dot! why did you screen that man? He went on no errand of yours!" They had known each other all their lives and once there had been few secrets between them.

"Because," she said, "if Wilfred knew he would dismiss him, and Pierre is the only man I can trust with my Monster. Promise me you will not tell Wilfred."

Her eyes were wild and terrified. To soothe her he said: "I will not speak to Wilfred without consulting you."

"Thank you!" she replied.

Lady Beeston mounted the oak staircase. Gerald joined the men in the smoking room.

"I'll have this out," he thought, "after the morrow's ride."

"So I hear you have been ghost hunting, Gerald," said Sir Wilfred, as his friend entered the room; "what did you see?"

"'Je vis l'ombre d'un cocher,
Avec l'ombre d'un brosse,
Balayant l'ombre d'un carrosse!'"

quoted Morten.

"'Carrosse' being the French for motor," said one of the men.

"Approximately," replied Morten, helping himself to a cigar.

(TO BE CONTINUED.)

[*The next chapter will be written by Katherine Tynan; the fifth by Iota; and the conclusion by Max Pemberton.*]



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Motoring in Italy

(*Continued from page* 63.)

Tiber is crossed, over a fine bridge built by Augustus, whose numerous structures of utility, after the passing of many centuries, certainly entitle him to the distinction of *Pontifex Maximus,* "the chief bridge builder." On approaching Civita Castellana the road is crossed by a bridge 250 feet above the tributary of the Tiber flowing in the chasm below. The effect of entering the town over this ravine, and under the dark walls of the town, is impressive.

From Civita Castellana to Nepi and Monterosi the road lies through the site of the ancient Ciminian forest, once the home and stronghold of brigands. Though much of the immediately adjacent country is rough hills, and rocks, and underwood, it is often splendid in color, as well as form; and Monte Soracte is a striking feature. This character of the country continues to Monterosi, near to which the alternative road from Florence to Rome, via Sienna, joins the Perugia route.

Boccano, in a hollow, is the next village south of Monterosi, and soon after leaving it, from some high ground, Rome in the distance presents itself over the desolate Campagna, over which the blight of malaria has long settled: a trouble which need not disturb the motorist, for he need not tarry on it into the night. Here and there there remain fortified houses and castles of the middle ages, deserted; but the pine, the ilex and the broom, show that the withering spirit of the Campagna does not extend to its vegetation. Yet, aforetime this was the granary of Rome, and may be again, and out of its pestilence, the mosquito, may arise results, which will not only free the Campagna, but the world, of this breeder of fell diseases, from yellow fever upward and downward in the scale of the ills which flesh is heir to.

Through the desolate Campagna the road winds and undulates, and at length reaches the yellow Tiber, which is crossed at Ponto Milo. Thence the route approaches the city by many a deserted ancient villa until it arrives at Porta del Populo, which is a striking entrance to the "Eternal City."

Rome's history is not mine to attempt; it is the common property of the world. From "Gibbon's Decline and Fall" to the latest impressions, it is theme of a thousand pens. It is my mission to guide you to its portals; what you find within the "Eternal City" will largely depend upon your previous industry, idiosyncrasies of temperament, and artistic and æsthetic tendencies; but whatever these may be you are on the stage of the world's history, as no other locality focuses it; and you have come to it through a panorama of more of its history than you could have assimilated by any other means than that of the motor car. The motorist lives en route through the vistas of the past, through the very arteries of the story of the nations.

Perhaps no one has done more toward bringing the Ormond-Daytona beach to the attention of the motor world than J. F. Hathaway, who, in the winter of 1900, took to Florida one of the first motor cars that ever traversed the hard sands, and thus unknowingly introduced the terrible germ that now infects all tourists and even the native crackers. As an illustration, of ninety people whom he initiated that winter in motoring, forty-four immediately contracted the fever and purchased cars within one year.

The number of motor cars imported into America in the year 1904 was 602, valued at a little over $2,000,000. For the ten months up to the end of October, 1904 (the last figures available), there were imported into England, 5,811 motor cars and cycles, of the value of $13,199,660.

It is estimated by people who should know that there are from 11,000 to 15,000 power boats of small size on the inland waters of the United States.

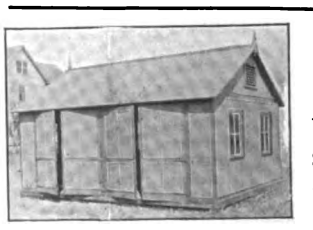


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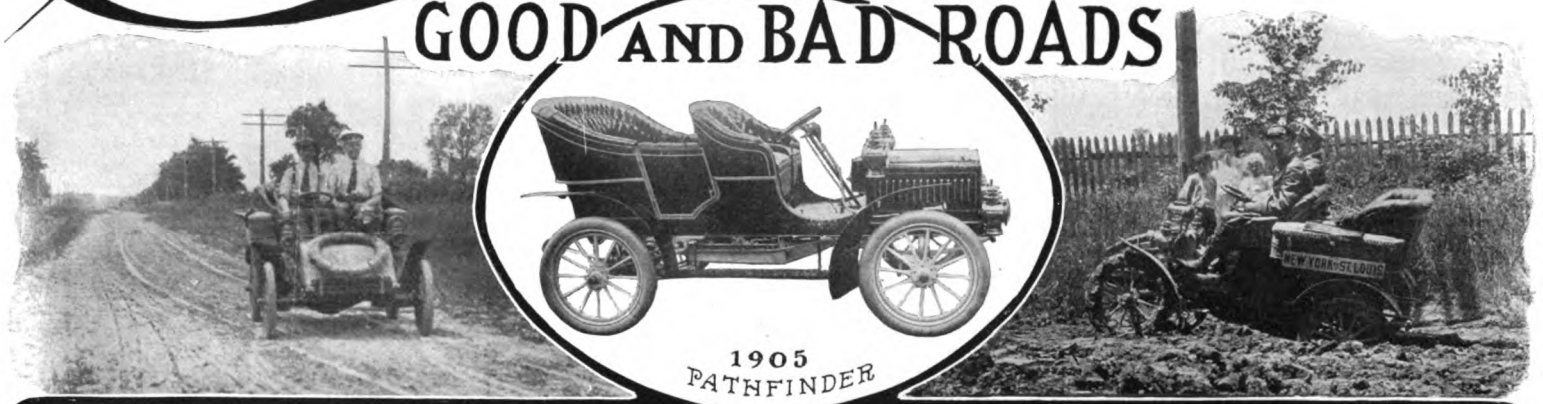
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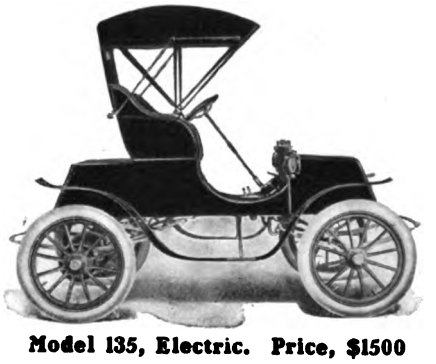
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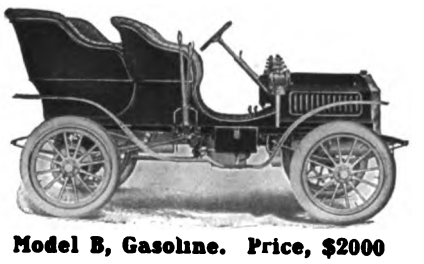
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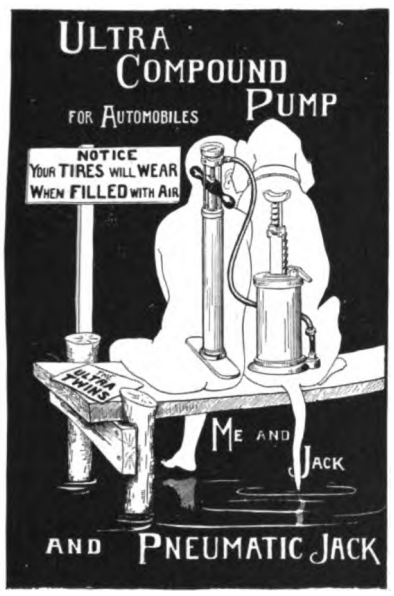
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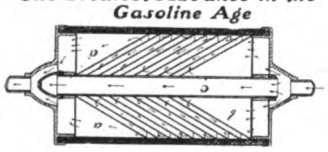
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Motoring the Year Round

(*Continued from page 61.*)

Now, more than ever before, the motor car is used for going to the opera, to the theatre, to a concert, or to some social function, and mankind is no longer haunted every minute of the time by the thought of what the horse has so long suffered for its sake. Cellars and larders are replenished, and holiday presents are forwarded to and from us now by the energy of harnessed motors, which move tens of tons without a strain. The motor car can be left in any roadhouse shed, with the knewledge that it needs neither food nor care, and will be ready when required, whether that be in one hour or five, and whether it rains, hails, snows or blows.

The motor car is doing a power of good in correcting the habit of being unnecessarily afraid of the cold. Northern climates are rigorous, it is true, but most North Americans come of hardy stock. They became tender from the facility with which they could make a rousing fire from the woods which came down to their very dooryards. Gradually they have transmitted the tendency, further helped by steam heat, to coddle up at the very season when nature calls the loudest to be up and out, laying in a store of good, red blood to meet the debilitating drain of long and exhausting summers.

Science, especially medical science, is beginning to recognize that the air is life, and that the cold, crisp atmosphere from over the snow-land, free as it is from dust and every other impurity, is the prime life-giving essence. Even the consumptive now is exposed continuously to it by day and night, sleeping out in open piazzas, or like unprotected place, by which means the vitality of the system is restored, the inroads of disease arrested, and the whole being balanced into the most perfect physical condition. If these be the magical results to those upon whom the fingers of an otherwise certain doom have been laid, how much greater the benefits to others of a voluntary return to nature, and a free use of all the opportunities which the motor car has so remarkably and so happily enlarged.

Since the advent of the motor car, there has been a gradually developing and constantly broadening of the idea that this mode of travel could be made almost as feasible and enjoyable in zero weather as under summer skies. From an essentially fair weather vehicle, the motor has evolved into the sturdy, dependable cars now available to the public. The motor car has proved its worth beyond question, until it stands in a class by itself among all means of travel.

Every one who has tried it knows that the winter landscape has a beauty, a quietude and a consolation of its own. The quickening tingle of the blood, the exhilaration of the crisp air, with the silver of frost afloat in the sunshine: these, of course, cannot be compared with summer's generosity of color and bird song. But much color may as easily grow wearisome as too much greyness; and the latter may always receive a sudden touch from that supreme magician, Old Sol, with the most gorgeous results.

We are sorry for the man who considers it wise to store his automobile at the first touch of really cold weather, for it is unnecessary to lose all the continuation of the pleasure which the summer months have given. Just persevere in the determination to take a short initial tour on just the right sort of zero day, and the chances are you will come back a convert, to your great advantage, and be willingly enrolled among those who go motoring in winter.

In Hartford recently, on one of the coldest days, a Knox car was used to convey the commissioners of the Hartford Fire Department to the scene of a test of a new fire-engine on the banks of the Connecticut river. At the time the thermometer was about zero, and the water in the water gauges of the engine froze. The route to the scene was over a rough road, the snow being about two feet deep in some places and nearly over the hubs.

Two cars of the same type were installed in

"NOSTARE"



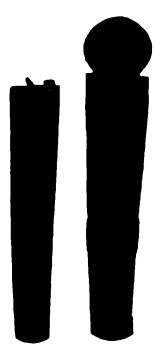
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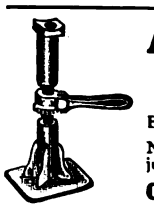
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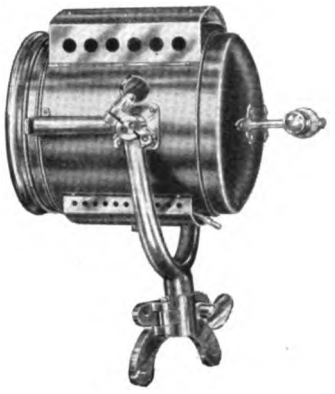
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Just a matter of dollars and cents

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IF YOU knew for sure the car would sell better fitted with Solar lamps, you wouldn't bother much with second-bests, would you?

Specially when the best second-best is a weak imitation of the Solar—and costs about the same?

Some pretty clever men among your rivals have found out it's easier to sell a Solar-fitted car than otherwise.

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No after-kick—"The Solar Shows the Way," and the buyer finds it out—and says so to other folks.

Might be as well to hear more Solar,talk, mightn't it?

And to look at photos of the 1905 line?

Whenever you're ready, Mr. Auto Manufacturer.

The Jobber

who doesn't get the

SOLAR proposition

(confidential)

is going to miss a lot of auto-lamp sales next season

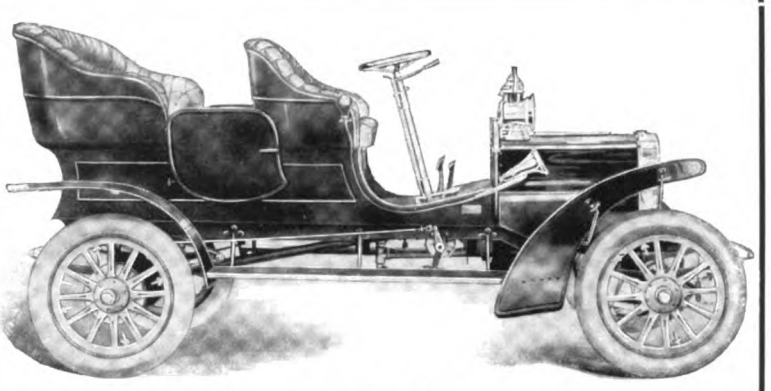
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Price, $1,700

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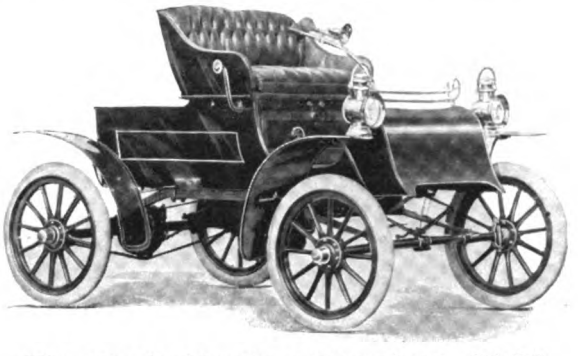
No strut rods or truss rods, no belts, chains or gaskets. Planetary transmission. Enclosed driving shaft supported by roller bearings. Only three vital points to oil.

Three-point motor support, insuring perfect alignment of machinery over all roads. Every part accessible without getting under car.

The Northern is the only dustless touring car. A large fan, cast integral in 24-inch fly-wheel, which sets in slanting position, throws immense volumes of air under car toward rear, with the result that tonneau passengers enjoy complete freedom from dust. Northern Automatic Compensating Carburettor—built to fit the engine—assures perfect mixture at all speeds.

General Specifications

Wheel base, 100 inches; gauge, 56 inches; wheels, 30 inches; tires, 4 inches. Motor, 5¼ x 5¼, double-opposed cylinders, developing 17 b.h.p. Transmission, planetary type, 2-speed forward and reverse. Weight, 2,000 lbs. Choice of four bodies, all interchangeable; two-passenger body, five-passenger rear entrance, five-passenger side entrance, or Limousine body.



The Sturdy Northern Runabout—$650

Easily best and strongest Runabout made. Stylish, comfortable, speedy and reliable. Will go over any road and climb any hill.

1905 Improvements. Larger body, larger fenders, bigger oil cups and full back molded seats.

If you want to get in touch with a line one year ahead of all others, write to-day for Catalogue 13.

Northern Manufacturing Co.

DETROIT, U. S. A.

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SHAIN'S AUTO WIRE TERMINALS
Prevent Loose Wires & Poor Connections.
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AUTO-SPECIALIST
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CANDY CARBIDE
For FRENCH AUTO LAMPS (Imprégnation dans le vide)
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A PERFECT IGNITION OUTFIT ALWAYS BEARS THE NAME.....
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BEAR THIS IN MIND WHEN YOU ARE LOOKING FOR SUCH.
C. F. SPLITDORF, 17-27 Vandewater Street New York, U. S. A.

the service of the Electric Express of Hartford in December, and are now in constant service ever since. No repairs have been necessary, even though the operators were green and had no previous experience. These cars carry loads of nearly two tons without any difficulty. During the month of December the business of the company was very heavy; in previous years the rush had proved too much for the company; this year they were able to take care of it, owing to the employment of the cars. Ten horses and five teams would have been necessary to handle the business. The average daily consumption of gasoline was about 5½ to 6 gallons. The entire city is covered, the business of the company is on the increase, and the employment of these cars greatly increases the efficiency of the service. Manager Evans is very enthusiastic, and says that he would not go back to the old method for any amount. Another express company in the same city, owing to the heavy snow, was forced to employ four horses on one single rig, whereas the cars have been running through the deep snow with full loads without any difficulty. The depth of the snow was said to be no barrier, and the performance is most satisfactory .

An improvised light delivery wagon in the service of one of the largest houses in the same city consisted of an old and almost worn out Knox single cylinder runabout chassis, topped by an ordinary wagon top. This machine is used for special delivery covering the entire city. The operator claims he can do three times the work of an ordinary team and two horses.

On a morning after a severe January blizzard in New York City, when street car traffic was very much impeded by the heavy snowfall, and when horses drawing both pleasure vehicles and trucks of all descriptions were unable either to get foothold or to move their loads except with the greatest difficulty, an Oldsmobile runabout of the curve dash type started down Broadway from the Columbus Circle. Without a hitch of any kind, the sturdy little machine ran through snow drifts and over roads coated to the depth of several inches with loose snow, worse than heavy sand. The driver vouched for the fact that so ample was the power in the engine, that he found it unnecessary during the run to the Battery and back to use the accelerator or advance the spark.

The Cuban Motor Inning

The Havana-San Cristobal 100-mile road race, to be run February 11, will be the leading feature of the first annual automobile and motor boat race meet held under the auspices of the International Automobile Racing Association of Cuba. This tournament will open February 9 with seven racing events at short distances. On February 10 the motor boat contests will be held in Havana harbor. On the 11th will come the 100-mile road race for the Havana Municipal Cup, valued at $1,000. The 12th will be devoted to sightseeing in the vicinity of Havana.

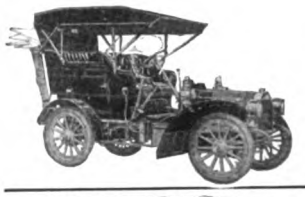
Many entries of well-known racing cars have already been received for the 100-mile road race, and this event will be one of the most important of its kind held thus far, and it is expected that twenty drivers of international fame will participate. The Havana San Cristobal road is under Government control, and is consequently well kept. It is quite level and fairly wide, and its surface is hard and smooth. The Havana Fire Department, the six Havana bicycle clubs, and the Rural Guards of the districts through which the course lies, will all be stationed along the course and thoroughly police it.

The large number of motorists now assembled on the Ormond-Daytona Beach are much interested in the Cuban tournament, and it is expected that many will journey there.

The Cuban association has these officers: President, E. J. Conill; treasurer, L. G. Rabel; American representative, W. J. Morgan; European agent, J. de Armas.

Americans Coming to Paris to Purchase Automobiles
Order your Body Work of
LAMPLUGH
English-Speaking Firm
Highest Class Workmanship
N. B.—Your order will be turned out at the time agreed upon.
LAMPLUGH & CO.
24 Rue Greffulhe, Levallois-Perret (PARIS) Seine, FRANCE

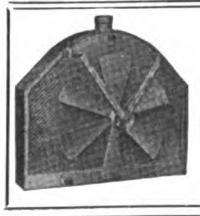
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Radiators and Coolers of Every Description

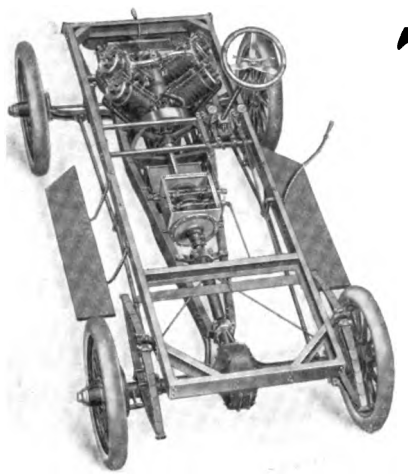
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The MARMON

A MECHANICAL MASTERPIECE

1905 MODEL PRICE, $2,500

There is nothing like the Marmon—and nothing better. You have never attained the superlative of comfort in automobiling unless you have ridden in it. IT RIDES LIKE A PARLOR CAR. It excels everything at home or abroad in these EXCLUSIVE FEATURES:

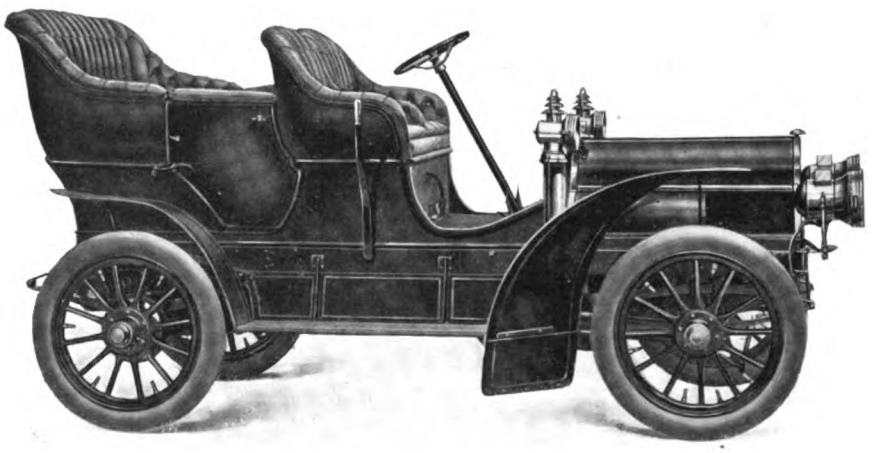
Double Three-Point Suspension—Mechanism and body on separate frames, each hung on three points. No binding strains in transmission. No engine vibration in body. Road jolts minimized.

Unique Motor.—Four cylinders set on angle of 90 degrees. Air-cooled, noiseless, efficient. It laughs at hills. Relieved of a great burden of friction, 20 H. P. in the Marmon accomplishes more than 35 H. P. in many other cars of accredited high grade.

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Rigid Shaft Drive.—Full power delivered to wheels by unbroken shaft, bevel gears, and inner driving axle. No Cardan joints. Spur planetary transmission, runs in oil.

Control.—Quickest, simplest, and surest yet devised.

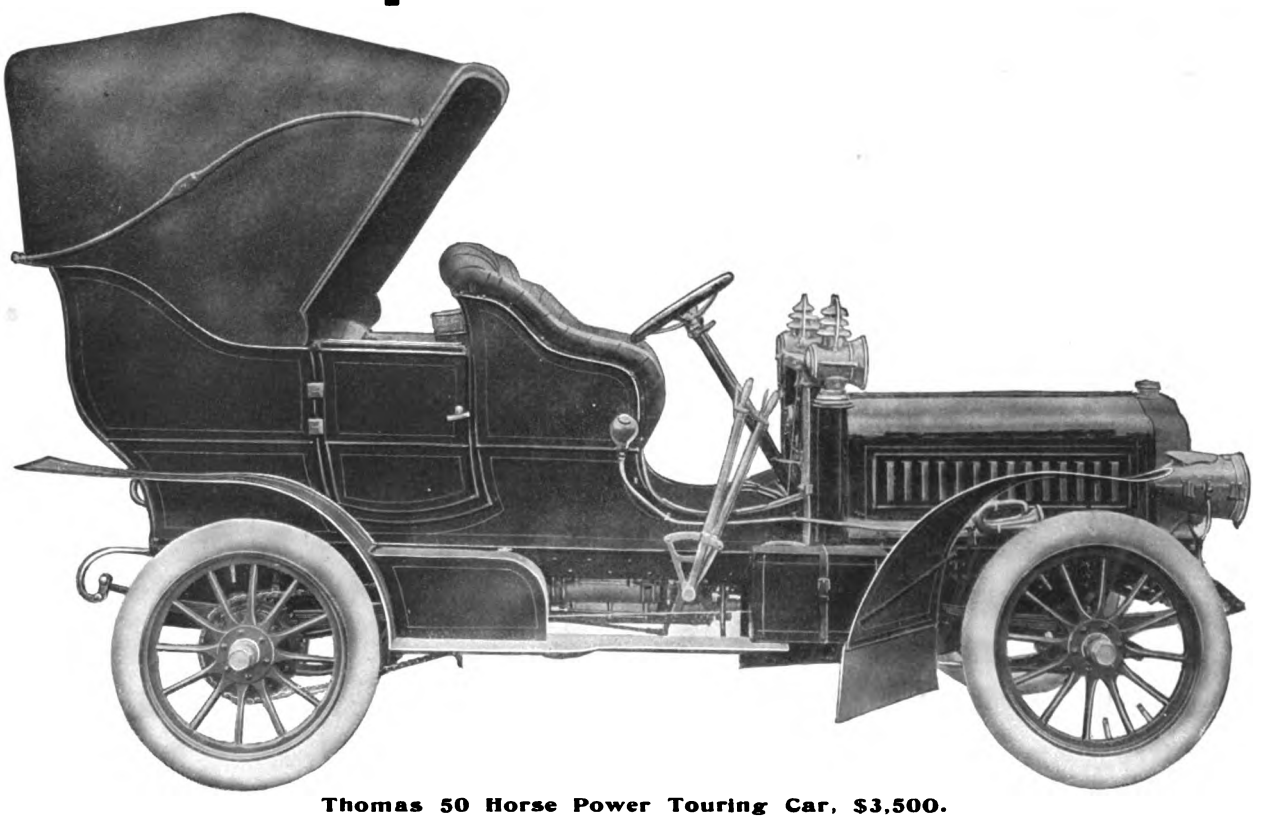


The Marmon excellence is not confined to the major "talking points," but extends to every ounce of material used, to the accurate workmanship on the threading of the least important bolt.

The general design of the car is graceful and roomy, with luxurious double side entrance tonneau. With ease, comfort and high speed it exemplifies the extreme luxury of motion. Guaranteed in every part. A few good agency contracts open.

NORDYKE & MARMON COMPANY, INDIANAPOLIS, INDIANA (ESTABLISHED, 1851.)

The Hit of the New York Show



Thomas 50 Horse Power Touring Car, $3,500.

Send for Catalogue, Colored Picture and Book Testimonials.

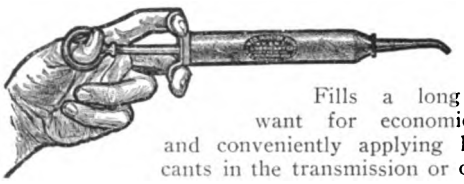
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Members Association of Licensed Automobile Manufacturers.

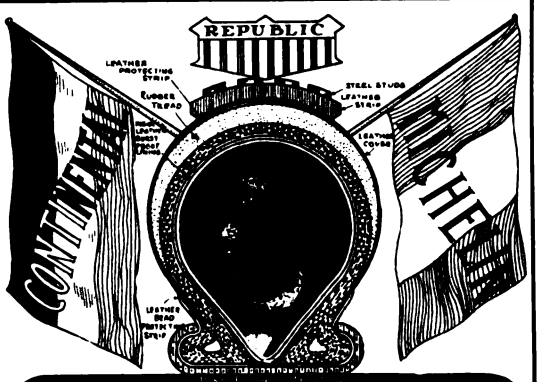
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Fills a long-felt want for economically and conveniently applying lubricants in the transmission or other hard-to-reach parts. **Can be operated with one hand. This saves crawling under the car!** Will soon return its cost in oil saved and last a lifetime because made from heavy gauge seamless brass tubing with **SEAMLESS** spout. Ask your dealer or write us for circular.

N. Y. & N. J. Lubricant Co., 14 Church St., New York



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of the Motor Tire Business and can rebuild and recover your CONTINENTAL, MICHELIN or AMERICAN tires and make them as good as new. I will fit your tires with heavy vulcanized rubber treads or apply removable, solutionized treads vulcanized on by my secret vapor process.

THE REPUBLIC NON-SKID LEATHER COVER can be applied to SOLID, CUSHION or PNEUMATIC tires. Have you seen the LEATHER BEAD PROTECTING STRIPS and LEATHER LININGS? Something new. Saves your tires. Saves you dollars.

THE REPUBLIC RUBBER TIRE & SHOE CO.
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TIRE CASES

Lamp and Auto Covers, Tool Rolls, Leggins and other Automobile Sundries.

Special discount to the trade. Best goods, lowest prices. Send for descriptive list.

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AGAINST LIABILITY FOR DAMAGES FOR INJURIES TO ANY PERSON.

AGAINST THE HAZARD OF EXPLOSION OR FIRE FROM ANY CAUSE, WHILE **AUTOMOBILE** IS EN ROUTE, OR IN ANY PLACE IN THE UNITED STATES OR CANADA.

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Please let me know what will be the cost of a liability policy for

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a steam automobile, of.....horse-power, of.....
electric

make, and used for business / pleasure purposes

Name.....

Address.....

Motoring in Society

(*Continued from page 57.*)

the club most keenly interested in the affair are Colonel Astor, James L. Breese, Commodore F. G. Bourne, Robert Goelet, and Arthur Iselin.

* * *

Motor boats will constitute a more important feature than ever this spring in the regattas at Nice, at Monte Carlo, and elsewhere along the Riviera. No less than four-score boats of this kind have already been entered for the races organized by the International Sporting Club at Monaco, alone, and further additions to the list are expected. A considerable amount of money is being offered in the way of prizes, and everything is being done to foster this relatively new form of sport, which is as yet in its infancy. One of its most enthusiastic votaries is William K. Vanderbilt, Jr., and, under the circumstances, his election last month to the office of commodore of the Seawanhaka Corinthian Yacht Club, may be regarded as an excellent augury for the future of motor boat racing in American waters.

* * *

There is but one bona-fide club in New York—and for the matter of that in America—at the doors of which motor cars of every description may be found waiting all night long. It is the so-called "Brook" in East Thirty-fifth Street, which unlike other clubs never closes its doors, but remains open, not merely from one year's end to the other, but likewise throughout the night. Every other club closes at some hour or another after midnight, when those of the members who do not feel like sleep are compelled by the despotic ordinances of the House Committee to take their departure in order to give the servants an opportunity for much needed rest. But, at the Brook, the service is arranged in watches, and is as perfect at 4 and 5 o'clock in the morning as it is at the same hour in the afternoon. Center Hitchcock is the president, Oliver H. P. Belmont the vice-president and chairman of the House Committee, while Frederic Gebhard, Edward Bulkley, Lewis Stuyvesant Chandler, and Thomas B. Clark are on the committee. Among the leading members are John Jacob Astor, De Cource Forbes, John Follansbee, James W. Gerard, Pierre Lorillard, Sidney Dillon Ripley, Alfred, Cornelius, Reginald, and William K. Vanderbilt, Jr., Harry Payne Whitney, and J. Dunbar Wright, who has lately sailed for Europe for a motor tour in Germany, France, and Spain in his forty horse-power Mercedes.

MARSTON.

A VEIL FOR THE MOTOR GIRL

Every motor girl will be glad to hear that there is another new veil out, made purposely for her own particular use. It is not a long veil, or a short one, and it is not filmy, and it has no filmy ends to float in the breeze or to fly back and hide one's vision. The new veil is shirred around the crown of the head and then shirred again at the neck. It hooks at the side, the fastening being covered with a full rosette, generally of the same material as the veil. The Washington's-Birthday motor girl will have a veil of white or gray, or of a color matching her coat, which will be fastened at the side with rosettes made of many loops of baby ribbon in red, white and blue, or other color combinations.

Another fashionable veil is shirred on a wire hoop fitting the crown of the hat. It is shaped like a filmy hood, and comes down over the head, covering the back of the head and the ears, and then tying in front under the chin in a shirred bow. The face veil, which also is shirred to the hoop, is not sewed to the rest of the veil, but is made separate, so that it can be thrown back at will, and yet can be readjusted under the chin when desired.



STA-RITE
"STAYS RIGHT THE LONGEST."

There were
TWICE AS MANY



"Sta-Rites" sold in 1904 as in 1903, and we were leaders in 1903, being the only exclusive exhibitor of plugs at the Chicago Automobile Show.

Dealers can make more money by handling our line exclusively, 23 sizes, $1.25 to $4.00. A new separable plug, ½", at $1.75. See that "Sta-Rite" is on the shell! Coils, gouges, etc.

1904 1903

The R. A. HARDY CO.
225 W. Broadway. New York City



USE **ALBANY GREASE**

THIS TRADEMARK ON EVERY PACKAGE



FOR YOUR Automobile

LOOK OUT FOR YELLOW LABEL

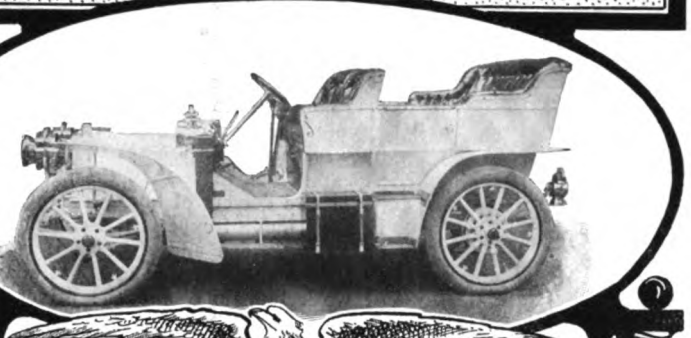
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Can be used in any style or make of Compression Cup.
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It can be purchased the world over from Engine and Mill Supply Houses, Hardware and Oil Dealers.
Use No. 2 grade for Winter and No. 3 for Summer. For Transmission or ensemble gears use No. 1 in Summer, and No. 0 in Winter. The quality of the grades is the same; the difference is only in consistency.

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1905 MODELS.

18-22 Horse Power.
30-40 Horse Power.

CALL AND SEE
THIS FAMOUS SWISS CAR

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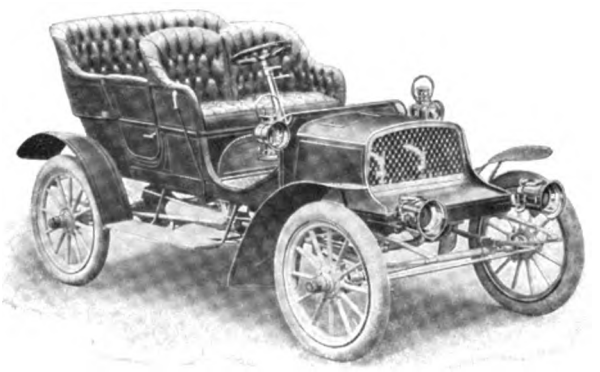
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One of the most popular cars at the Shows



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Anti-freezing Device—can be left standing in Zero Weather

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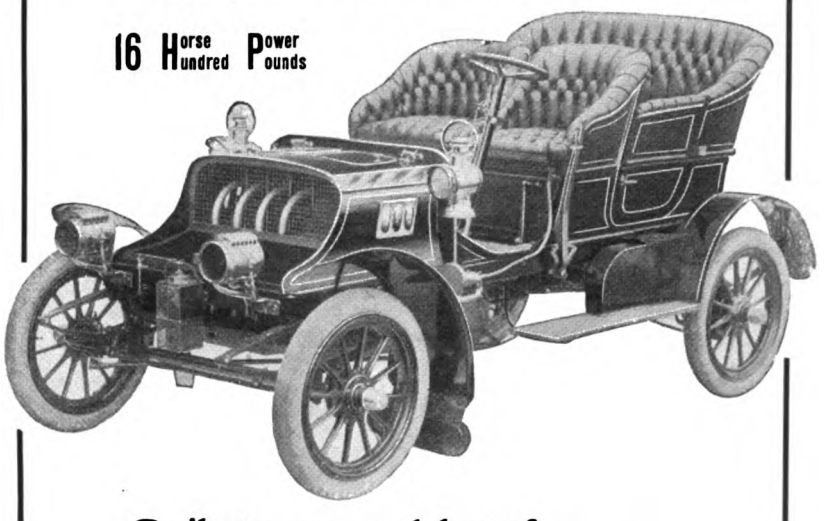
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16 Horse Power Hundred Pounds



Built to run and last for years.

Air-cooled 16 H. P. vertical motor, 4 cylinders, 4-inch Stroke. 4-inch Bore.
Side entrance detachable tonneau.
Double chain drive. High road clearance.
Long wheel base (96-inch).
Full elliptic springs, guaranteeing ease and comfort on the road.
Simple control and powerful brakes.
Complete equipment.
Finish of the highest possible quality.
Price, complete with tonneau, $1,500.

See us at the Coliseum, Chicago.

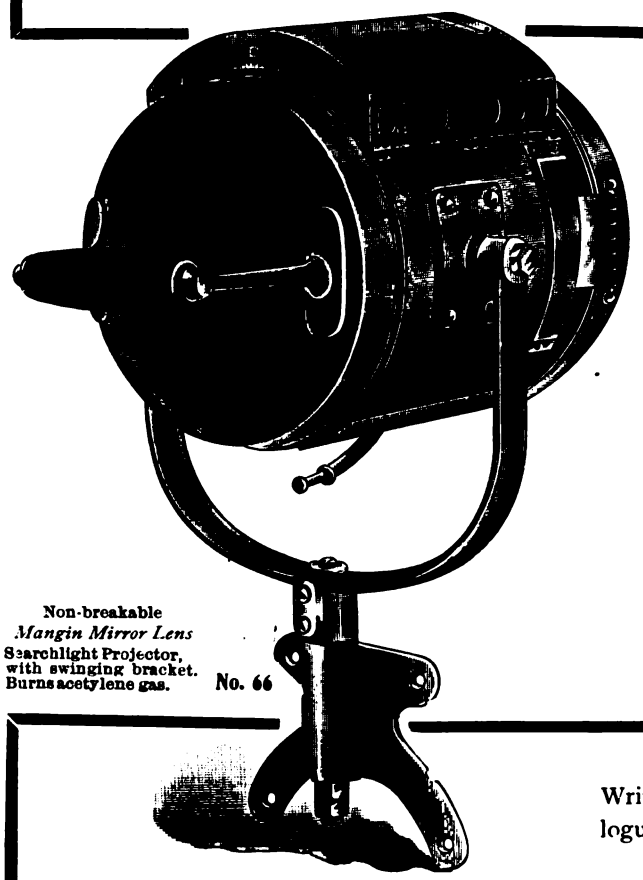
MARION MOTOR CAR COMPANY

INDIANAPOLIS, IND.

New York, cor. 38th St. & Broadway. Chicago, 1337 Michigan Ave.
Denver, 1558 Broadway. St. Louis, 47th and Olive Sts.
Boston, 147 Columbus Ave.

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The Brightest and most powerful light



Non-breakable
Mangin Mirror Lens
Searchlight Projector, with swinging bracket. Burns acetylene gas. **No. 66**

The reflectors used in

The Neverout

Patent Motor Lamps

are exceedingly brilliant and project a strong, powerful light. They always retain their original brightness, can be easily cleaned and are absolutely non-breakable.

Write for free illustrated catalogue and get all the facts.

The Neverout
REGISTERED TRADE MARK

Mangin Mirror Lens Searchlight

is simple in construction, and neat and beautiful in appearance. It is so well put together that it won't rattle or come apart.

The acetylene gas is provided in a safe and economical manner by our

new patent gas generator

A steady, white light. No odor and always ready for immediate use.

Rose Manufacturing Co., 914 Arch Street, Philadelphia

THE REAL THING

The General Sales Manager of one of the largest motor-car manufacturers in this country wrote to a man interested in motor-car publications:

"I visited Los Angeles, San Francisco, Denver, Salt Lake City, Omaha, and in San Francisco conferred with our representatives from Portland and other cities in the Northwest country. I was interested in making some special inquiries relative to advertising mediums, and it may interest you to know in what high favor MOTOR stands in all cities visited. In San Francisco and all along the California Coast it is thought to be the 'real thing.'

"I think MOTOR has a line up that is going to 'skin the board.'"

No Comment Is Necessary; the Above Speaks for Itself

MOTOR For the Reader—Interesting
For the Advertiser—Profitable

ON THE SPEED QUESTION

By Major Richard Sylvester of Washington, D. C.

It goes without saying that most of the motor vehicles are arranged for extraordinary speed, and that the disposition of the average conductor is to make fast time. The rapid pace which characterizes business and social pursuits tends to this condition. Some of the machines used are nothing more than locomotives off the track, possessing so formidable an appearance as to weaken the nerves of pedestrians and drivers of horses on their approach. In the hands of experts these machines can be promptly guided and stopped, if in good mechanical order, but that does not allay the fear of weak humanity, and the driver not being able to determine the intentions of the pedestrian, he or she is often run down.

The disposition of the individual who keeps a motor car for pleasure is to make speed, it being especially true that the immature and young are inclined to get out of the machine all there is in it. Where used for professional purposes, by physicians, there are times when a lively gait is maintained—may be to save human life—on the principle that the ambulance moves at a rapid rate. The business man saves time and body, and generally observes the regulations.

With a view to protecting life and limb, all kinds of regulations have been established as to the conduct of motor vehicles, but regulations unenforced are of no avail. The police are charged with the enforcement, and superiors, the purchasing authorities, are derelict if they do not furnish subordinates with the facilities for doing their duty in a just and fair manner. The police do not want to cause people trouble, as many would infer, because it makes trouble for them, but a faithful officer will do his duty by causing those who violate the law to answer in court. There the operator's word is taken with the officer's, but in the District of Columbia the officer is supportable by the record of speed as shown by a speed indicator. These instruments are attached to sixty bicycles, and they are examined and tested every few weeks as to their accuracy. No good citizen should object to this honest treatment when the officer is respectful in his manner in making the arrest. There must be regulation in all matters, otherwise the social body would go to pieces and government become a farce. The District police department was the first to adopt the speedometer, and it has proven itself generally a valuable adjunct to the service.

THE DAYTON MOTOR SCHOOL

The Young Men's Christian Association, of Dayton, O. is conducting a series of lectures on motor cars in connection with its educational work. This feature has been remarkably successful in many cities. On Tuesday evening, January 24, all owners and prospective owners of motor cars, and all chauffeurs and machinists interested in the subject, were invited to a lecture on "The Construction and Care of an Automobile." The lecturer was Harry Croninger, who has had a number of years of experience in this line, and has delivered in other cities chalk talks and lectures which have been well received. At the close of the lecture, opportunity was given to enroll in the Dayton Automobile School. The school will be conducted on the plan of that of the New York, Buffalo and Boston Y. M. C. A. schools. Lectures will be given by experts, and a shop course will be carried on in the machine shop owned by the Association in the rear of its building. Practically all dealers and the president of the Automobile Club have agreed to co-operate to make the enterprise a success. The aim of the course is, as one member of the educational committee puts it, "to provide a clearing house for automobile ideas."

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COMMERCIAL-ACETYLENE COMPANY'S



Absolute Safety

in the production and use of

Acetylene Gas

by the

"GENERAL" System

and absolute proof of that safety are our reasons for advertising.

You know the perfection of this marvelous light.

We solicit correspondence and the privilege of mailing you our Catalogue M.

The General Acetylene Co.
Generators for House, Store, Office and Street Lighting.
80 Broadway, New York

Cheaper to Use Than Generators

ABSOLUTELY NO WASTE.

No Freezing. No clogged burners, no work, no trouble.

Gives the Whitest, Brightest Light

Fresh tanks, each holding from 80 to 150 hours' lighting, sent by express in exchange, make the supply continuous.

The Commercial Acetylene Co.'s SAFETY STORAGE SYSTEM is in use on over 60 yachts and other craft, has been adopted exclusively by the N. Y., N. H. & H. R. R. and the D. L. & W. R. R., and is used on many other lines, proving its superiority and economy. It is also in use by most of the prominent owners of automobiles, including Messrs. J. H. Flagler, T. A. Havemeyer, Colgate Hoyt, J. F. D. Lanier, Sidney Dillon Ripley, W. K. Vanderbilt, Jr., Robt. E. Tod and Col. J. J. Astor.

It is just as adaptable and economical for little machines as for the big ones.

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COMMERCIAL ACETYLENE CO., 80 Broadway, New York

THE Robe OF Comfort



The Davis Air Tight Bag Lap Robe

Instantly put on or off, made of heavy black, tan or blue **waterproof Mackintosh** cloth or **pure rubber drill,** leather shod, lined with heavy imported dark green plush. Will keep you WARM AND DRY IN ANY WEATHER all day long. It's the simplest, neatest, handiest and warmest of robes for man or woman. Price $10. "Baby Bear" fur $20. This bag BIFURCATED makes greatest chauffeurs overgarment ever produced, are called The Davis Arctic Over-pants, price $10. Leather $15. Send inside-seam length Express paid when cash accompanies order. To parties with commercial rating **all goods will be sent for examination and trial.**—You'll never return them. ART BOOKLET FREE.

Pat. pending

The Davis Robe Co., Inc.
126 SO. STATE STREET
CHICAGO

"For good-day to all disagreeable weather."

"Your soul and soles will suffer less."

"See them at New York and Chicago Shows."

FOURTH ANNUAL

Chicago Automobile Show

February 4th to 11th, 1905

RAILROAD RATES.

The passenger associations have granted *a reduced rate* to members of the American Motor League for the convention to be held at the same time as the Chicago Show.

They have not granted a reduced rate on account of the Chicago Show.

Persons who are not members of the A. M. L., but who desire to take advantage of the rate, may apply for details to Isaac B. Potter, President, Vanderbilt Building, New York.

Every manufacturer of automobiles of importance in the United States will exhibit at the Chicago Show.

S. A. MILES, Manager,
The New Southern Hotel,
Chicago, Ills.



Will you be with or without ?



Automatic Dust Deflecting Guards make motoring as clean as sailing

REEVES PULLEY COMPANY.

Columbus, Ind., U. S. A., Nov. 16, 1904.

Mr. Wm. Hiram Brown,
124 W. Jackson Blvd.,
Chicago, Ill.

Dear Sir:—Your Dust Deflecting Guards are a howling, roaring, cyclone success. I didn't believe in them at all when they came. I said to the boys unpacking them, "careful of the crate—we'll need it in a few days."

I drove down home, got my wife and a lady friend of hers in the tonneau, and we rushed through eighteen miles of two, and sometimes three, inches of the dustiest dust ever, and believe me, those ladies stepped out of that auto looking like they had just used "Pear's Soap"; no occasion to brush. I was astonished and they were tickled. That was the beginning. Since then I have again and again demonstrated to my entire satisfaction they are all you claim for them. They simply keep the dust from kicking up into the tonneau, no difference which way the wind blows, no difference whether you drive fast or slow.

You have cured my auto of the nastiest, dirtiest, meanest trick it had, and here's to your health and happiness, and, incidentally, my check.

Very Truly,

G. L. REEVES.

W. H. BROWN, 124 W. Jackson Blvd., Chicago

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STORAGE BATTERY FOR IGNITION
— MONITOR TYPE —



VOLTAGE—4, 6 AND 8 CAPACITY—20 AMPERE—HOURS. PRICES—$6.00, $9.00, $12.00.
OTHER STYLES—$3.25 to $32.00.

CATALOGUES ON REQUEST.
ESTABLISHED 1889.

AMERICAN BATTERY COMPANY
162 SOUTH CLINTON ST., CHICAGO, ILL.

WEBB SPEED INDICATOR
"JUST HOW FAST"



2 MILES TO 150 MILES
ACCURATE
RELIABLE

HANDSOME and ARTISTIC IN DESIGN
No car complete without it.

WRITE FOR CATALOGUE
THE WEBB COMPANY
477 Park Row Bldg. New York City.



(White Car Fitted With St. John Non-Puncturable Tires.)

The tire which solves the most vexing problem presented to motorists. This Tire is always ready. Requires NO INFLATING. Cannot be punctured. Costs less, more resilient and requires less power to drive than the pneumatic.

SEND FOR CATALOGUE AND TESTIMONIALS

ST. JOHN RUBBER TIRE CO., Inc., 116 Broad Street, New York City

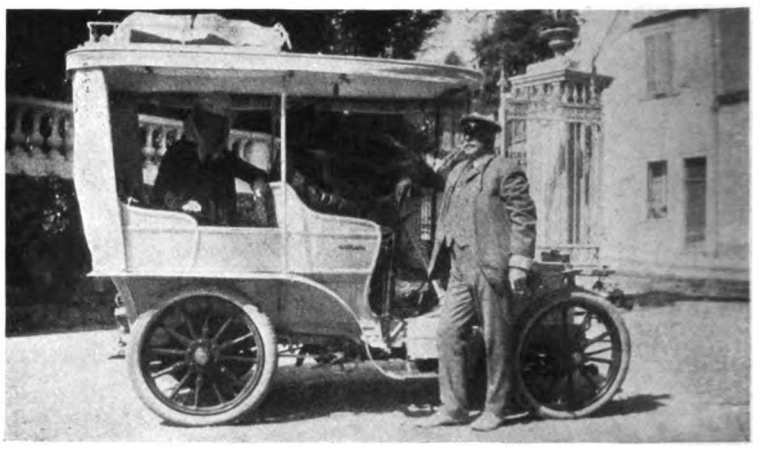


Kingston Carbureter
OVER 23,000 IN USE
KINGSTON
Carbureters, Mufflers, Spark-Coils, Spark-Plugs, Steering Wheels, Pumps, Oiling Devices, Etc.

PAT. MAY 12, 1903
OCT. 11, 1904.
Other Patents Pending.



BYRNE, KINGSTON & CO.
339-351 Smith Street
Kokomo, Ind., U. S. A.



FROM SAVOY TO LOMBARDY

By Deming Jarves

The road from Cannes to Mentone is too well known and faithfully described in guide-book, novel, and magazine to bear repetition. Who has not read of, or traveled over, the famous Corniche Road, constructed during the reign of the first Napoleon, whose far-seeing mind suggested the usefulness and beauty of this causeway along the shores of the Mediterranean?

It is profitless to describe Nice or Monte Carlo, its gambling halls, terraces, and mountains, for among the earliest recollections of our childhood are pictures and engravings of these pleasure gardens of Europe. The present generation is unfortunate in an over-familiarity with famous places before we actually see them; due to these very engravings, pictures, and photographs. How often the traveler experiences a sensation of disappointment on his first view of some world-renowned spot. These black and white reproductions can give but a faint impression of the beauty of the original. The romantic stories connected with the past seem to cast a mantle of melancholy aloofness over the ageing walls. A sadness clings to the ruins and permeates the atmosphere with feelings of indefinable regret. As the eye wanders over these massive reminders of the past, the present is forgotten, and the imagination loses itself in conjectures and dreams of the people who erstwhile made these bare walls so pregnant with interest.

At Mentone the atmosphere of worldliness and frivolity, the over-dressed women, flashing in jewelry and fine feathers, the weary men and forlorn adventurers of Monte Carlo, are left behind. One experiences a sense of relief as this unhallowed spot disappears behind Cap St. Martin.

The Italian Riviera stretches its wide panorama before us; on one side the great sheet of cerulean waters, on the other the maritime Alps raising their terraced slopes into a cobalt sky. Through white villages hanging to purple hillsides, midst groves of grey olives, varied here and there by a dark cypress, winds the well-kept road, now overtopping some sudden precipice at whose base, hundreds of feet below, the waves are breaking, or plunging from the glare of sunshine into the depths of a cedar forest. Roses of every shade and color abound, falling over terraces and marble balustrades, climbing walls and gateways, crowding down embankments, pushing their sweet blossoms into cottage window or through iron railings, even forming a dainty frame to some dark tunnel entrance. On all sides innumerable flowers and plants, immense tracks of verdure, a wealth of sunshine, perfume, color. A Bougainvilliers close to a dark magnolia shows its rich purple in wonderful contrast to the pale blossoms at its side. In the shade of a live oak, a stone bench or broken fountain, grey with centuries of sun and rain, unconsciously suggests a sylvan peace delightfully remote from modern days and ways. Who would be surprised to find Pan piping beneath these cool shadows, or a Dryad swinging on yonder grapevine?

The Corniche Road, besides being famous for its beauty, might be justly so for its innumerable railway crossings, forty of which we counted during our two days' run from Cannes to Genoa. The guardian, who lives in a little stone house near the tracks, feels called upon to close the gate at least fifteen minutes before the train is due, and as the



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Mullins Beaver Tail Auto Boat.

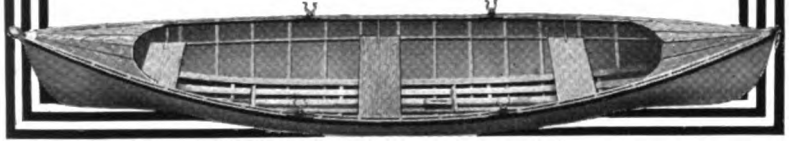
MULLINS STAMPED STEEL BOATS CAN'T SINK

Built of steel, with air chambers in each end like a life boat; buoyant as cork—strong—safe—speedy—seaworthy. They don't leak, crack, dry out, wear out or sink, and are endorsed by the leading sportsmen, resorts, boat liveries, etc.

Write today for Catalogue of Motor Boats, Row Boats, Hunting and Fishing Boats. :: :: ::

THE W. H. MULLINS CO.
(The Steel Boat Builders)
124 FRANKLIN STREET, SALEM, OHIO

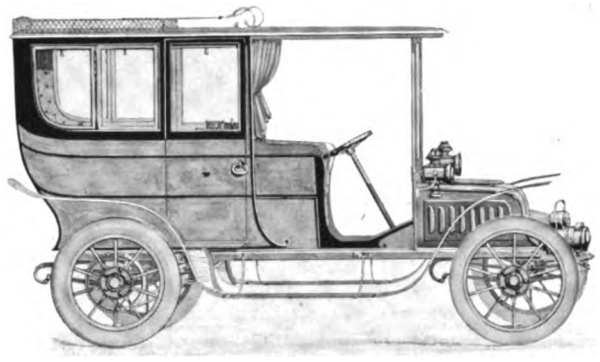
Member National Association of Engine and Boat Manufacturers.



KIMBALL

FINEST QUALITY—SPECIAL DESIGN

BODIES AND TOPS



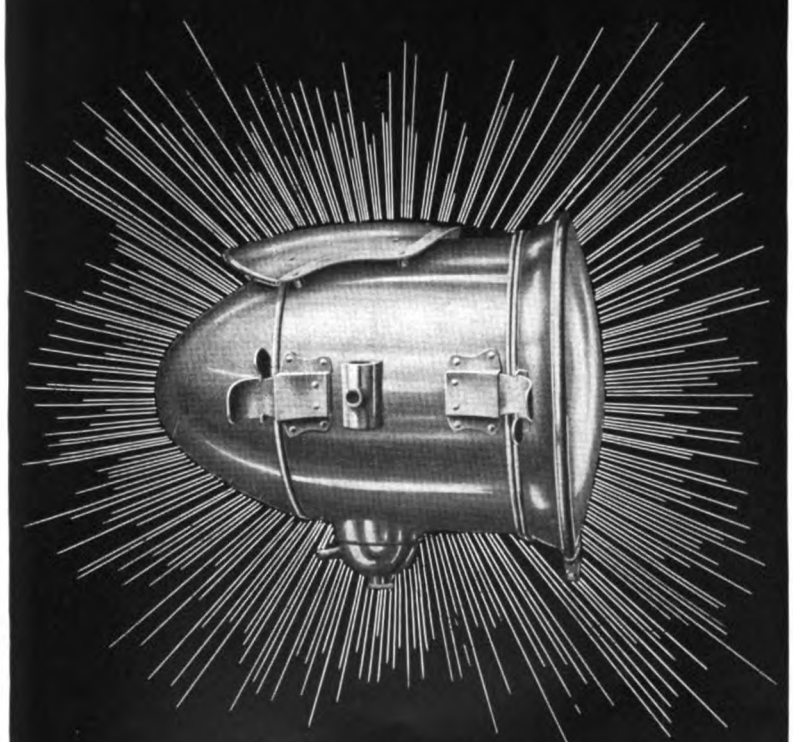
PURCHASE THE CHASSIS

Then let us make a Special Body to suit your individual taste.

Inquiry solicited for Bodies or Tops of all kinds for any make of machine.
Bodies on Old Machines Altered, Changed and Made Over to Suit.
All Kinds of Repairing and Repainting.
Prices Reasonable.

C. P. KIMBALL & CO. 315 Michigan Ave., CHICAGO

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Bullet Gas Lamp
Is a Success

Be sure you have Bullet Gas Lamps on your car this season.

GRAY & DAVIS, AMESBURY, MASS.

Barrett Automobile Jacks

"Barretts Patents"

Are the only *reliable* and *substantial* Jacks on the market for Automobile purposes. They have been adopted by all leading manufacturers and operators to the exclusion of all other Jacks.



No. 04-Double Acting Jack
10 and 12 inch sizes.

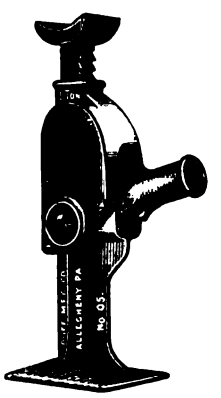
Manufactured in 5 sizes in single and double acting Jacks 10 and 12 inches high, adapted to any make of automobile and to any possible condition.

Quick-acting, easy to operate, conveniently carried as part of the tool equipment.

"Barrett Jacks" awarded the

Gold Medal.

highest Award at the World's Fair, St. Louis.



No. 05-Single Acting Jack
10 and 12 inch sizes.

MADE ONLY BY

THE DUFF MANUFACTURING CO.

Works, ALLEGHENY, PA. - - PITTSBURG, PA.

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ODOMETERS FOR MOTOR CARS

will be exhibited at Chicago, Detroit, Cleveland, and Boston, as they were at the New York Show.

"It's Nice to Know
How Far You Go."

THE VEEDER MFG. CO., 24 Sargeant Street, Hartford, Conn.

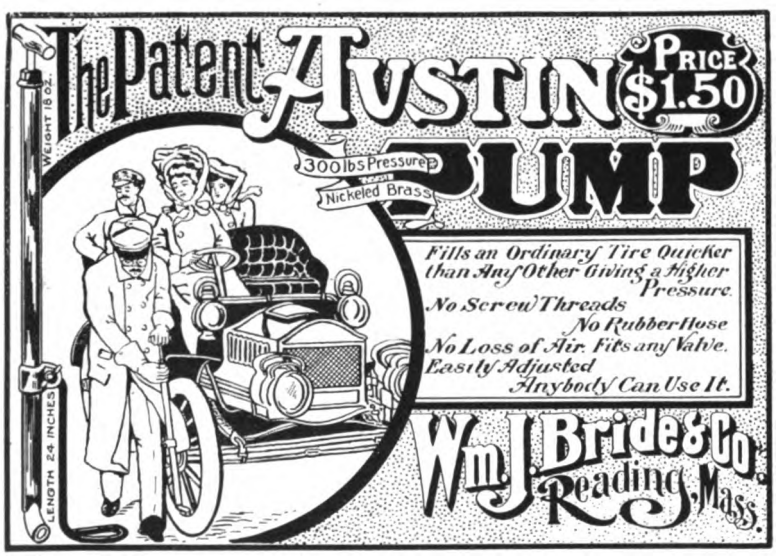
Cyclometers, Odometers, Tachometers, Counters and Fine Castings.



THE SPEEDOMETER

Speed questions are interesting to everyone, therefore, everyone should write for a copy of the "Speedometer" —a little bulletin on "Speed." Sent free anywhere.

Jones Speedometer
135 West 32d St., New York



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"COAT OF MAIL"

IS

1. A REAL TIRE PROTECTOR, being ABSOLUTELY UNPUNCTURABLE at the shoe.
2. A TIRE SAVER, ALL wear and strain being taken from the tire.
3. A NON-SKIDDER, teeth that REALLY HOLD on ANY road and CAN'T CALK UP.
4. ALL DETACHABLE, put on or removed in a few minutes.

Price from $20 to $30, according to size.
The great TIRE PROBLEM is SOLVED.

POST MFG. CO., 1908 Broadway NEW YORK, N. Y.



latter is often some twenty minutes late, a delay of half an hour or more is truly exasperating. At one spot, an ancient "diligence," ourselves, and a wagonload of peevish and bleating sheep waited impatiently for the Paris-Rome Express, no blandishments or money having the slightest effect on the stern guardian of the track. His sense of importance was such that he could cheerfully scorn a "pourboire," although the line was in plain view for half a mile in both directions. We admired the scenery and waited.

After crossing the Italian frontier a marked difference becomes apparent. Although more picturesque in the varied colors, more artistic in their huddled groupings, the houses of these Riviera towns—Bordigheria, Savona, Alassio, are much dirtier, noisier and more dilapidated than their French neighbors. They greatly resemble each other. The same cluster of red-tiled roofs, above which soars an airy campanile, the same dusty, uninviting promenade along the water front, whose brown, unkempt palmettos are devoid of shade or beauty, a few bedraggled flowers, a dusty place crying loudly for grass is the usual "park" of these towns. The stone streets are so narrow at times the motor car can barely push through. The bystanders flatten themselves against the walls, and open-air stands of stale vegetables, earthenware pots, old clothes, etc., are in imminent danger of being scattered abroad. Overhead the four-storied houses shut out all but a narrow strip of blue sky, while flying buttresses and arches of stone (to guard against earthquake) obscure what little sunshine might otherwise penetrate through the ever-present weekly wash, flapping gaily across from window to window. The women and children in picturesque rags idle about the doorways, the men lounge in the numerous wine shops; in fact, the squalor, poverty, and general indolence are painfully noticeable after the prosperous villages of France.

As, however, the fortified walls of these unsightly cities dwindle in the distance and once again one inhales the clean breath of the sea, one forgets their unpleasantness and remembers only a picture of pearly towns lying at the feet of vine-clad slopes, the mirror of peaceful waters reflecting only its towers, walls, and campanile.

Motoring in different countries is as varied as the scenery, habits, people, or architecture, but one thing remains ever and unfailingly the same, whether in Provence or the Plains of Lombardy; namely, the attitude of chickens, hens, and roosters towards motor cars. No matters how contentedly they may be scratching and pecking on one side of the road, no sooner is the motor on top of them (or nearly so), than they are seized with a mad desire to investigate the opposite side. Much flapping of wings, fluttering of tail feathers, and hot anger ensue, and the "White Ladye" dashes by to the accompaniment of hoarse cackLings and irate squawks.

"Genoa La Superba" is also too well known to describe. We found it a busy modern town, given up to commerce and men of many tongues and enterprises, its harbor as full of masts and shipping as in the old days when Andrea Doria ruled the seas in the name of "The Republic."

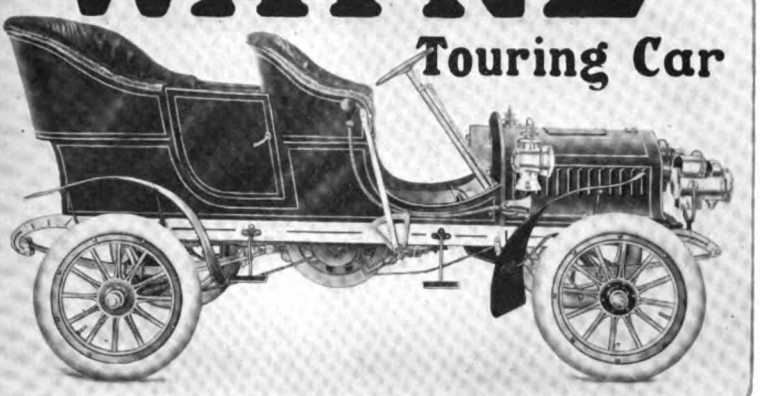
At 9:30 o'clock the next morning the auto was in the courtyard, baggage covered with a canvas sheet neatly strapped on top, ourselves and chauffeur swathed in leather garments, while a crowd of gesticulating Italians circulated about the machine, touching its wheels, running their hands over its brass work, each explaining to his non-listening neighbor the mechanism as he understood it. All through our trip in Italy, we found the same impersonal, eager interest. Wherever the "White Ladye" stopped, a crowd instantly collected, sometimes in the remotest places, such as Cremona, Parma, Picenza, Borgo, San Donino, etc., twelve or fourteen deep on all sides, the children in front, gradually increasing in size to the tallest inhabitants.



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WAYNE

Touring Car



A five passenger touring car with double side entrance tonneau for

$1,250.00

The Wayne Model "C" has a 16-H.P. double opposed cylinder motor, planetary transmission, and 90 inch wheel base. The motor and fly wheel are hung under the chassis frame making the center of gravity low. This improves the running of the car, gives stability in turning corners and by decreasing skidding on the curves lengthens the life of the tires so that the expense of running the Wayne is less than any car of similar type.

We also make Model "A" the same type of car with rear entrance detachable tonneau for $1,200.00. Both cars equipped with two oil side lamps, tail light, horn and set of tools.

A catalogue giving full particulars of both cars, and which also describes in detail our 24-28-H.P. side entrance 4 cylinder car will be sent on request.

WAYNE AUTOMOBILE COMPANY
DEPARTMENT M
DETROIT, MICH.

"The Maxwell"



16 H.P. Touring Car	8 H.P. Runabout
$1400	$750
New Price	*New Price*

These two automobiles have jumped at a bound into the popular favor of those for whom they were built. The automobilists and the agents of experience who have long been searching for an absolutely dependable car at a moderate price have found in the Maxwell an automobile that exactly meets their requirements. Not only has it many new points that are self-evident in their practical utility, but its general thoroughness of construction and simplicity of design have won for it a recognition among the "wise ones" never before attained in such a short time.

The "Maxwell" cars have no pump (thermo-siphon). Their double opposed motor shaft drive is in front under the hood and easily accessible in every part. Bevel Gear Drive, Metal Bodies. Transmission Case and Crank Shaft cast in one piece of Aluminum. "Perfectly simple, simply perfect."

New York City Salesroom, 317, 319 West 59th St.

MAXWELL-BRISCOE MOTOR CO.

TARRYTOWN, NEW YORK

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THE PICTURESQUE TRUNK LINE OF AMERICA

LUXURIOUS VESTIBULED TRAINS

consisting of Sleeping Cars, Dining and Cafe Cars and Day Coaches

DAILY SERVICE BETWEEN

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The Erie Dining-Car Service is Unsurpassed

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ATLANTIC CITY

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3 Hours from New York via New Jersey Central

Solid Vestibule Equipment
Buffet Parlor Cars

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Spent Gas

will inflate your tires or produce a noise that will clear your car's way for blocks. A tank 6 by 12 inches screwed out of the way, under your car, will store enough gas to blow your horn or whistle and inflate your tires. Nothing to do after installing it—no work, no bother. A mere turn of the wrist produces a nerve-racking blast that can be heard for miles. In the city's rush and bustle the consumptive cough of a horn, or the weak jingling of a bell cannot be heard—it takes a noise to clear the way.

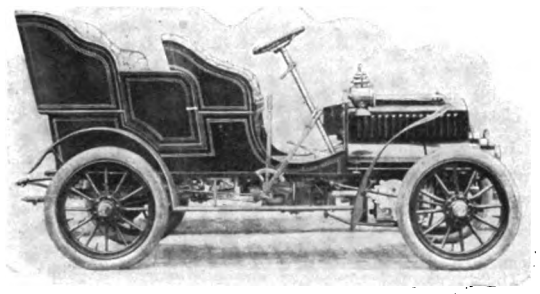
The Watres Whistle

is not an experiment. It has been on the market for years for motor boats. Sold only one way—on satisfaction. Send us $35 and we will ship the complete outfit—tank, whistle and tire inflator. Install it. If it does not give satisfaction, return it. The next mail will bring our check for your thirty-five. Booklet, if you care for further details, on application.

The Gas Engine Whistle Company

Manufacturers of the only successful Power Whistle for Motor Boats

1133 Broadway, New York



MODEL "D" WOLVERINE. SIDE ENTRANCE TONNEAU

CHAINLESS WOLVERINE

TWO MODELS { Side Entrance Tonneau, Model "D" / Rear Entrance Tonneau, Model "C"

Plenty of Power 20 hp. Seats 5 people — *Plenty of Speed* Sliding Gear Transmission — *Every Part Accessible*

See us at Section "B" Exhibition Hall, Madison Sq. Garden, New York, Jan. 14 to 21, '05. Also at spaces 165 and 166 Coliseum, Chicago, Feb. 4 to 11, '05.

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Dust Shields, Tire and Slip Covers

$45 and Upwards

W. J. DUANE & CO.

1771 Broadway, Send for Illustrated Cuts New York City



"MA" & "MAC" Spark-Plugs

NONE BETTER
NONE CHEAPER

Finest French Porcelain and Mica-Plugs
Porcelain-Replaces, Volt-meters, Ampere-meters
Combination Volt and Ampere-meters
Other European Accessories

Ask your dealer to show you samples.
Write to us for quantity—prices



HOLCOMBE & COMPANY

Direct Importers

18 East 28th Street New York City



But to return to our start for Lombardy. Nothing could have been pleasanter than this early morning in May; a young breeze from the sea tossing leaf and branch into the sparkling air. Genoa, Queen of tl Seas, as we looked back at her; roofs, towers and battlements shining in the strong light, her great chain of mountains encircling her, and the sapphire sea at her feet stretching away to the far clouds on the horizon.

We followed the road up the valley, passing on the outskirts of the city its famous cemetery, where beneath open arcades, midst terraces and arches, thousands of Genoese are taking their last rest, protected by a colossal marble statue of the Christ, impressive and reposeful in the stillness of the place.

A delicious valley opens out before us. The broad river bed is dry but for a narrow stream which the thrifty peasants are using at the moment as a washtub. They kneel in long rows at the water's edge, their skirts well tucked up, pounding and thumping their wash on the clean stones. After all, it seems a nicer way than ours. What could make a better laundry? Fresh winds, sunshine, and waters crystal clear from snow-topped mountains.

On all sides rise abrupt hills, the new greens of Spring resplendent in every leaf, bush, or blade of grass, the sunlight plays on the scant foliage, flickering the turf with constantly moving light and shadow, while over this shimmering landscape hangs the illusive haze of morning. The road is crowded with donkies, mules, two-wheeled carts, drays, trucks, market wagons, their lazy proprietors drawing begrudgingly to one side as the "White Ladye" toots her horn. As the road ascends, the cottages become fewer, the air more invigorating, Nature more exquisite. An hour's run brings us to a typical village of the Lower Apennines; a queer mixture of many-colored stuccoed buildings, with arcades and balconies like the Riviera towns, and rough stone hovels, unpretentious and unpainted. But however poor or sequestered the village may be, they all possess one characteristic in common—a tall campanile above a white church front whereon a faded Madonna and child gaze forever on a rusty iron sundial.

Our approach is heralded by ear-piercing shrieks and mad barkings. men, women, children, and dogs precipitate themselves into the street. Piled over high with sacks of flour, a large two-wheeled cart blocks the way, its owner indulging in "vino e'liquore" inside the village "Trattoria." The unholy din arouses the owner, who rushes out, one arm uplifted in warning, and disappears behind the sacks of meal. Of course I expect to find a prancing pair standing on their hind legs and waving their fore feet in the air. Fancy my surprise as a quiet fettle horse hitched to a fat donkey just twitches an ear as the motor glides by.

The mountains, a purple rampart, face us as we rush along the hard, white road. Up, up we go; the air is cooler now, tingling the blood, the vegetation scantier. Far below on the hillside lies the village and the cart. No doubt the driver is now finishing his "vino" in peace and clamoring and groaning over the motorist and his ways. Far above, and ahead, apparently at the crest of the mountains, clings a trim hamlet. When we reach it, we shall cross the summit and commence our downward run to the great Plain of Lombardy. (So I think in my ignorance.) Through the bracing air we rush, admiring the range of violet peaks ahead, piled one above the other until they fade away in the far distance, always higher and never aerial in the heavenward climb. As the highway winds upward, a sudden turn reveals the hamlet directly in front, its huddled houses and red-tiled roofs pressing close about the church. On a hillock above, crumble the ruins of some medieval castle, the ivy clambering through its sashless windows, the pink blossoms of a fruit tree glowing above its fallen gateway. Evidently a "festa" or fête day. As we slow up and enter the narrow street, it is crowded with a dense population, human and otherwise, our arrival causing more excitement than a circus in a country town. Dogs take it in various moods. Some, after emitting one sharp protest, retreat to dark doorways, others think it necessary to see us off the premises. Canine remonstrances in all keys, from shrillest "yap" to deepest growl fill the air. Mostly peasants from the neighboring mountains, their rough frieze cloaks flung over one shoulder, and slouch hats, giving them a sinister appearance, belied by smiles and cheers, these good people express their delight by bows, curtsies and waving of hats, the women

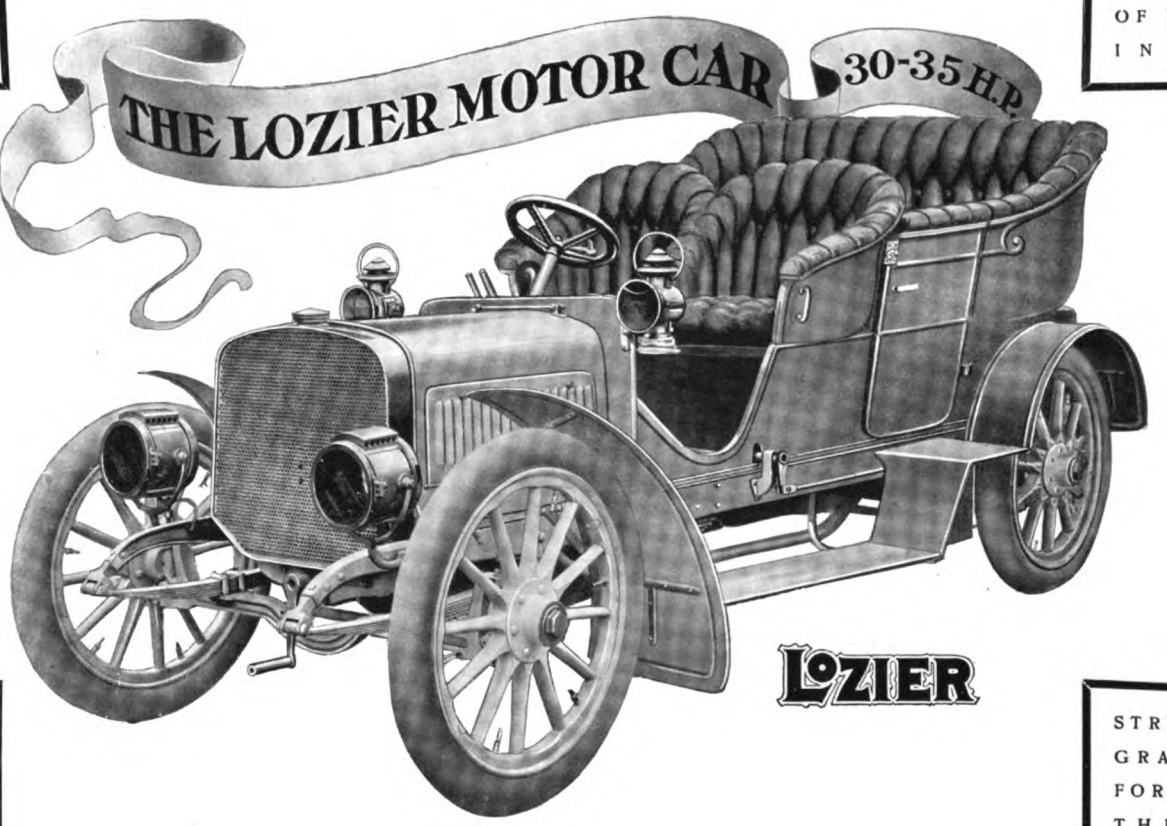


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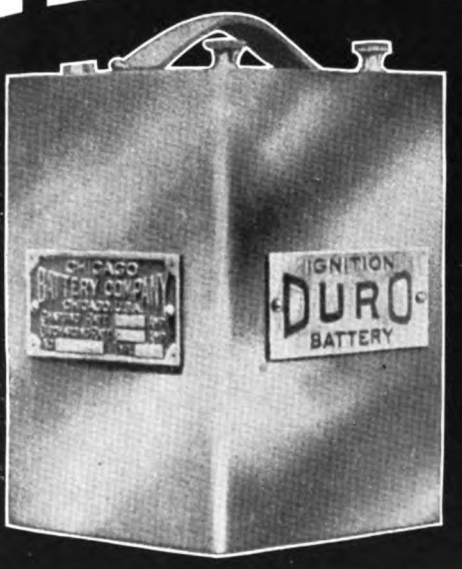
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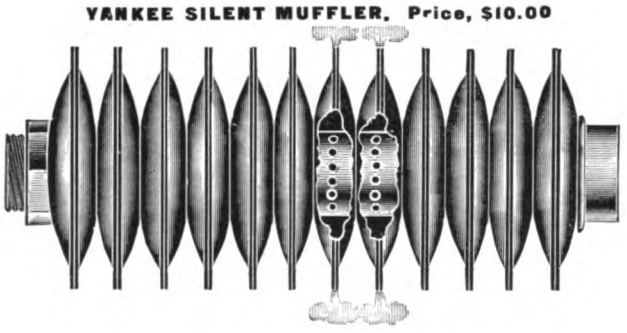
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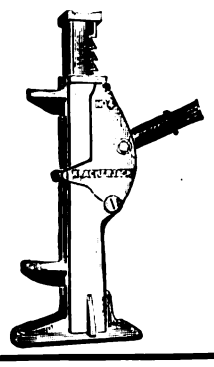


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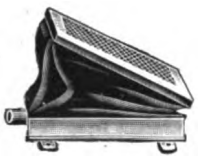


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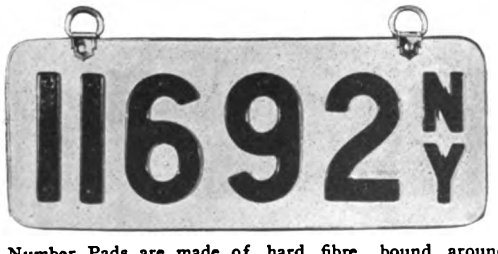


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more excited than the men. A large contingency of boys and men join the dog brigade, and thus escorted, we near the market place. Here Bedlam reigns, and the donkies, pigs, cows, horses, goats, and mules tethered to the walls of the house go mad. Such snorting, grunting, squealing, rearing, and groveling, with surreptitious kicks and bites in a neighbor's side. As the French say, "It is to laugh."

As we look back from the shoulder of the next mountain, the village far below in the hazy sunshine looks peaceful and somnolent, its clamor silenced by distance, its poverty hidden by the mellow atmosphere. No carts or donkies now, nothing but the fine empty road reaching away to the granite pass, the Ultima Thule of our climb, where on the summit of the mountain a few pink and yellow stucco houses offer a refuge for man and beast. The "White Ladye" needs a drink and the hindermost tire a pumping, so while these needs are being attended to, we stroll along the road to where a wonderful vista of hills and valleys opens before us. An old-fashioned diligence, packed with people, seven on a seat inside, and over-ladened by parcels and bundles of all sizes and shapes, lumbers by. The driver shouting and cracking his whip, eight lean horses straining on the rope harness, the occupants laughing and singing as though it were a picnic.

Bobbio, the next village of any size, is thirty miles further down the road, and though the keen hill air has given us a remarkable appetite, we conclude to ride on rather than try our luck in the pink town. Here the Apennines present brown rocky faces to the deep Italian sky. Desolate, devoid of trees, houses, or signs of man, here and there a few low bushes striking a darker note on the scarred barrenness, the eye wanders over one purple unheaval after another, crest succeeding crest in sharp outlines, until in the far distance a delicate, snowy peak uplifts its beauty above its brethren. A tiny mountain rivulet, clear as crystal, runs and leaps over rocks and boulders, bravely following us. Some way down we overtake the diligence (the occupants good naturedly wave hat and kerchief).

It would require a poet's pen to describe in truthful colors the beauties of the next twenty miles. It is quite impossible for me even to faintly picture the sombre majesty of those everlasting hills, the rugged wildness of valley and chasm, the effects of light and shade on crag and cavern, and, above all, the solitude of snow and sun. Apparently in a remote wilderness, far from man and his habitation, one might imagine one's self in a world just created in primeval freshness and silence, were it not for the excellent road—magnificent evidence of the skill and daring of that puny creature man; a road that turns and twists, climbs impossible heights, clings to sheer precipices, dives into rocky depths only to rise out of the cold shadows to breast once more another impossible mountain. All along a strong stone parapet gives a feeling of security in separating us from those whirling waters far below.

The one hostelry of Bobbio is a low two-storied building, glaringly orange, with iron balconies and striped awnings; the dining room, brick-floored, white plastered, spacious and dark, opens level with the street, many doors wide open making it practically a part of the piazza. From under its motionless awnings a crowd of handsome ragamuffins watch us partaking of omelette, hard bread, cheese, oranges and the red "vino del paese" (wine of the country). We had a long and wordy war over two fine trout caught half an hour before in our friend, the mountain stream. Money, persuasions, prayers, had no effect on the innkeeper. "It breaks my heart," he assures us, "nothing would give me greater pleasure than to broil the fish for their excellencies, but the syndico (mayor), what will he then have to eat? Friday does the mayor always eat the two trout and to-day he must do the same. Any other day, but no, he will be here the instant. I cannot offend the syndico even if you gave me, 15, 20, 50, even 100 liras." Our man, an Italian, wrangles with him. There are

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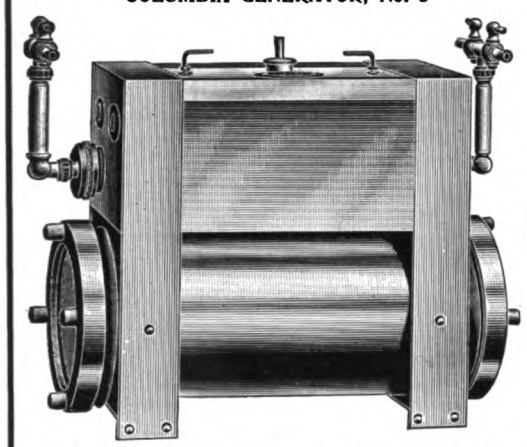
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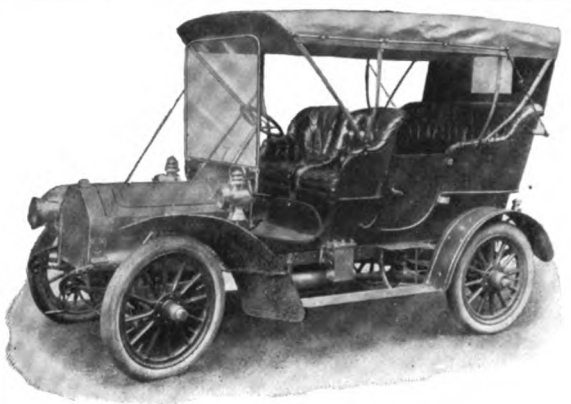
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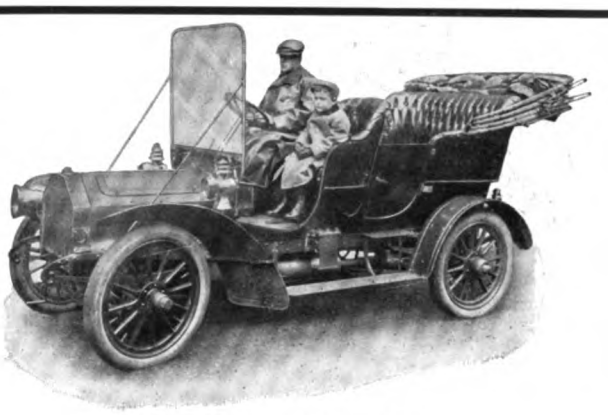
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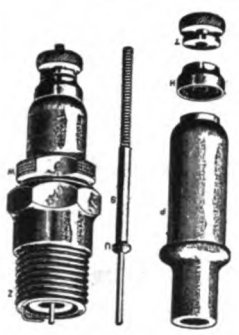
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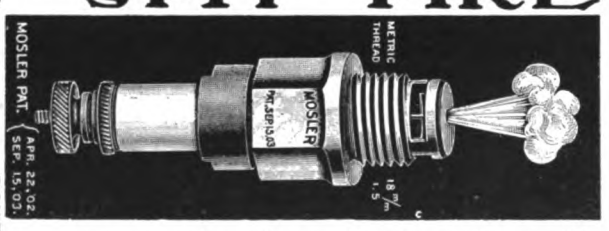
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shrugs innumerable, rolling of eyes, tearings of hair, but the trout remain in their spotted comeliness, on "the dish of the syndico." "Not for 100 liras, or 1,000 of the same, a thousand times no." So we are left to eat omelette and cheese, while a delicious smell of broiling fish tantalizes our robust appetites.

After leaving Bobbio, the highway runs gradually down towards the great Lombardy plain. It is surprising to find how quickly the scenery changes. Hamlets and wild gorges disappear, the transformation is complete, and one finds a smiling pastoral country, flat as a pancake, stretching away on all sides. The eye wanders over endless wheat and cornfields, bordered by rows and rows of stunted willows and hedges of blossoming hawthorn twelve to fifteen feet high. Every inch of this fertile valley is in a high state of cultivation. No little weed dare show its head. The rich grain, swaying to the afternoon breeze, grows four feet high about the little squat trees. The deep ditches in use here instead of fences or barbed wire, are full of limpid water gurgling beneath the overhanging hedges. Grapevines hang in heavy festoons between the stunted trees, with here and there a giant poplar, dark and thick leaved, looming above these sunny stretches. Prosperous farmhouses lie in the midst of this abundance. Every shade of color from deepest pink to palest blue or corn color, their stuccoed walls glow beneath the rich red and purples of their tiled roofs. One receives an impression of abundance, prosperity and cultivation. These people must be a contented, healthy generation, living in such a land.

Halfway along the highroad to Parma we come across the melancholy evidence of "too much zeal" on the part of a motorist; a demolished car is hiding in the hedge, turning a sulky back to the passersby. A little further on a smashed two-wheeled cart, a dead horse and three bruised and battered individuals give further testimony.

Our long day is drawing to a close. The Apennines on our right are clothing themselves in exquisite tints of rose and violet. The tall poplars, standing at regular intervals, cast long shadows across the road and over the flowering hedges into the fields beyond. A great fragrance from hayfields and wild flowers fills the air, a salute of perfume to the sinking King of Day. We meet cows and goats turning homewards, and haywains topheavy with the burden of new-mown hay. The slanting sunrays gild the towers and grey walls of Borgo San Donnino, and a few miles further on we reach our destination—Salsomaggiori—after crossing mountains and plains, a run of 125 miles from the seacoast.

Salsomaggiori is a small town on the foothills of the Apennines, at present greatly in vogue as a cure for throat and bronchial troubles. Famous in the days of the Romans, it has had a good reputation among Italians for many years, but is only recently becoming known beyond the Alps. One inhales an evil-smelling steam, bathes in mahogany colored waters, lives a Spartan existence ,and is supposed to go away greatly benefited. During our three weeks' stay, we visited in the autocar many of the Lombardian towns, such as Cremona, Piacenza, Parma, Mantua, etc., all greatly resembling each other. Famous in the Middle Ages for the wars they waged on their nearest neighbor and their undying hatred and jealousy of the next-door town, now they are pacific and lifeless enough; dull, sleepy places, somewhat shabby and dilapidated, lost in a dreamy contemplation of their glorious (?) past, content to bask in the hot Italian sun, the inhabitants lounging beneath the shadowy coolness of the arcades, rarely stirring beyond their moated walls. These towns suggest an endless siesta. Energies exhausted, industries nil, factories and commercial enterprises unknown, their sole attraction their faded and time-stained, but still beautiful, cathedrals of the Lombard-Romanesque architecture.

One of the pleasantest recollections of our touring in Lombardy was a visit to the medieval castle of Bardi, forty-five miles from the nearest railway and situated on a mighty spur of the Apennines. We started one cool morning, and after climbing mountainwards some two hours or so, stopped on a ridge for a picnic lunch. On all sides the hills fell away, their lower slopes thick with hamlets and walled farmhouses. In the middle distance lay the great plain, wrapt in a blue haze, a broad light streak meandering through the centre being the river Po. On the horizon, sixty miles away, the snow-crested Alps hung like pink clouds above the "battlefield of Europe." Our way took us along mountainous paths, far stretching forests of oak and chestnut—beneath their dense foliage horses and cows browse at large and gaze in wild-eyed wonder at the "White Ladye" and her occupants. Approaching the gates of Bardi, admittance is refused by four or five octogenarians sunning themselves beneath the walls. Such an outlandish, devilish thing has never been beneath the castlated doorway, nor shall it now. While we parley with the obdurate ones, a great crowd collects, pushing and shoving to get near enough to examine not only the car, but ourselves. Truly in our leather garments, goggles, and queer headgear, we must present a strange sight to these innocents. Suddenly the crowd parts, and two men advancing introduce themselves as the mayor and his chief alderman, who invite us to enter the ancient fortress and town of Bardi. The castle is a fine specimen of a medieval stronghold, with moat, drawbridge, portcullis, outer and inner fortifications, citadel, judgment hall, chapel, banquet hall, dungeons and oubliettes, all in perfect condition. The great walls and parapets stand on the crest of a hill, surrounded on all sides but one by a precipice. A stone may be flung from the terrace wall down one thousand feet. Dating from the ninth century, for hundreds of years it was a terror and menace to the land, and it is only during late years that the Bardi-ites are losing faith in its impregnability. After thoroughly examining, under the guidance of the mayor and his satellite, this ancient hereditary castle of the Farnese family, we bade farewell to Bardi, the crowd escorting us to the gate, the mayor, with Italian politeness, presenting Mrs. Jarves with a bouquet of flowers plucked from the castle garden.

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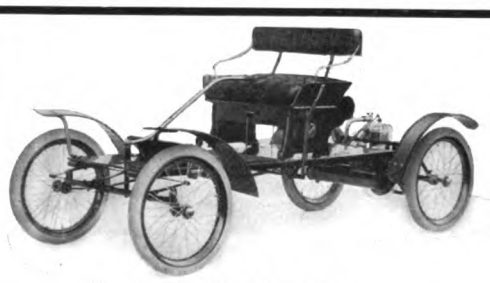
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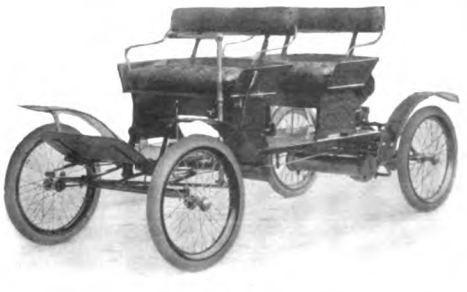
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ZANESVILLE, OHIO.—Hotel Rogge.

To the National City of the Dead

(*Continued from page 54.*)

Plummer, Paul, McKibben, etc. Among the pictures with this story is one of the Harney Monument, surrounded with graves less well known, but no less honored. Not far from the Temple of Fame is a mausoleum with the remains of 2,100 unknown soldiers, which, on Decoration Day, is buried deep from sight with the flowers of those who mourn and know not where their dead may lie, and who think, pathetically enough, that perhaps their husband, son, brother or sweetheart may be among those 2,100 for whom no names could be found.

To the south of the cemetery are the graves of the officers and men of the Maine disaster, and also the graves of hundreds of unknown dead of the Cuban and Porto Rican engagements in 1898. Still further to the south can be seen the earthen walls of Fort Tillinghast, and still other earthwork remains can be traced, reminiscent of the Civil War.

Continuing, on the way out, you will pass the amphitheater, where the Memorial Day services are held and where many a famous man, McKinley the Good, among them, has bared his head to do reverence to those whose valor made one country of a country divided, or who upheld for the love of it the principles of right which the Stars and Stripes stand for.

And that is about all that Arlington can show the tourist—graves and well-kept grounds, a handsome historic mansion, a beautiful view, and a spirit of peace and quiet, quite without any suggestion of gloom, for all the place is but a cemetery. For you cannot help remembering that most of those who sleep here died the death they wished to die, and that one and all are remembered, and will be for years to come, by a grateful people, as witness the thousands who lay their tribute there yearly and the hundreds of graves kept blooming with flowers the year round.

Leaving the gate by which you entered, you will have a chance to visit Fort Myer and see what it is most famous for, the riding drills. These drills are held several times a week, and can be seen by applying to the adjutant for a card. They are usually held in the drill hall, and are noted for their picturesqueness and the dare-deviltry of the troopers who equal the feats of circus equestrian performers with apparently the greatest ease.

Fort Myer is historically interesting as occupying the site of Fort Whipple, built for the defense of Washington after the scare of Bull Run. At that time every elevation around Washington was a fort, or protected by a masked battery, and all connected by rifle trenches. Now, of course, no trace of the original Fort Whipple remains.

Fort Myer, as already noted, contains the headquarters for the Signal Corps, which also maintains a training school. To the motor world, this part of the army is particularly interesting, inasmuch as it was the first to utilize the motor car as a means of transportation of signaling apparatus. At the present time, there is one Peerless and one Winton in the garage, the latter built expressly for this work.

Leaving Fort Myer, you can return the way you came or run down by another road to the highway connecting with Alexandria, a very good road, indeed. But the other road back to Washington, from Alexandria, is not particularly pleasant (see again article on Mt. Vernon).

Altogether, for the visiting motorist, the trip outlined here is a very pleasant means of spending an afternoon, or, if not long enough, as an introduction to the run to the famous Cabin John Bridge, until recently the greatest stone arch in the world, and which lies due west from the Washington side of the Aqueduct Bridge.

The date of the German motor-boat races, June 29 and 30, is somewhat unhappily chosen, as, according to the Paris Congress, the last week in June is fixed upon for the Gordon Bennett Cup race. It will be almost impossible for the German A. C. to alter the dates, as the events are to be included in the Kiel week.

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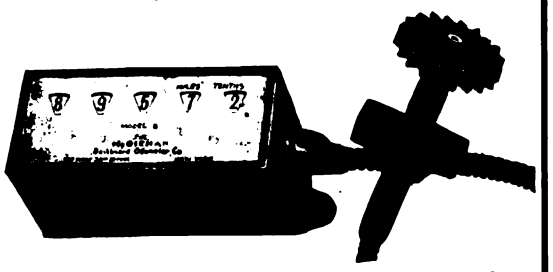
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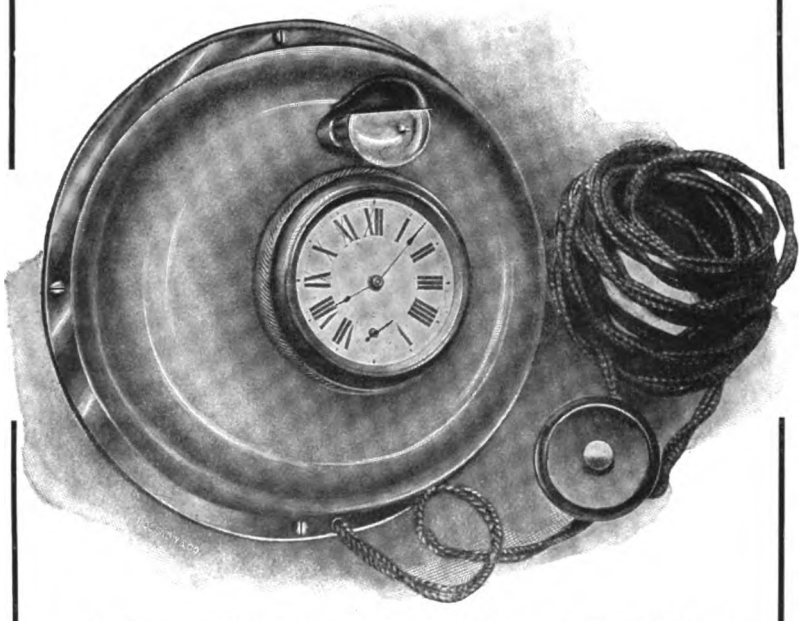
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WALTER L. FAY IN HIS WAYNE, READY FOR ROUGH WEATHER

FROM DETROIT TO CINCINNATI

By Walter L. Fay

I recently drove a Wayne car from Detroit to Cincinnati—a trip that may be of interest to some of MOTOR'S readers.

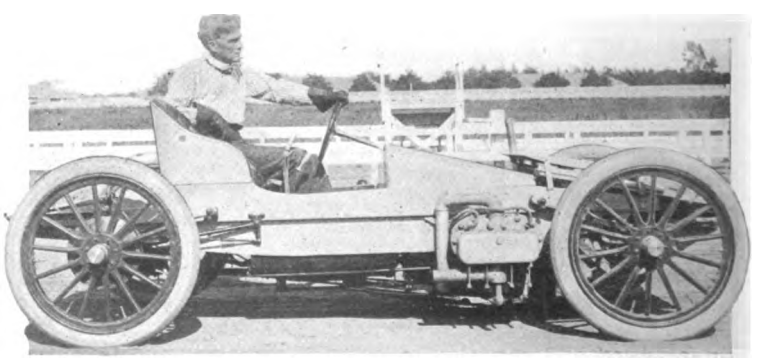
From Detroit to Toledo we ran in a blinding snowstorm, which at times prevented our seeing over a hundred yards ahead. To make matters worse, it grew dark after we had gone about thirty miles, and the wind blew so hard and it was so terribly cold we had to do some tall stretching of our imaginative powers to enjoy the delights of motoring.

We left Toledo the next day at 1.30 P. M. for Findlay, Ohio. It snowed nearly all the way, and, after leaving Bowling Green, we found the roads had all been plowed up, and it was impossible to drive a wagon over some places, so we took to the fields, taking down and putting up fences, until the glow from the blue jump sparks was enough to keep our ears and noses warm. It turned dark about four o'clock, and we still were in the fields. We had been running along nicely for nearly five minutes when I suddenly discovered a ditch in front of us, about five feet deep and nearly ten feet wide. After searching for some way to get out for fifteen or twenty minutes, we determined to cross it. We found a lot of tile piping which we had to carry, two at a time, over a hundred yards. After an hour's hard work, we had formed two separate crossings, one for each wheel, by placing the pipe lengthwise in the ditch, and then piling it up until it was even with the surface of the field. I took it on the run, fearing the pipes might slip, and succeeded in getting across, after which I discovered that I had run into the small end of a field with fence on both sides and ahead of me, and the ditch about fifty yards behind. I was doing the best I could to get out, when the owner of the tile piping appeared on the scene and, between sobs and back-kicks, informed me that I had made two days' work for him. I offered to pay him, but he would not accept; he just wanted to tell me how much work "we fellers" always were making for the poor farmer. He knew I was cornered, and started away, when I caught hold of him and slipped several pieces of silver in his hand, and told him to come back and tell me how to get out of the field. He drawled out something about us being "purty" good fellers, and said he would. Before he left us, he had invited us to come back next summer. We worked pretty hard, and after readjusting several barbed-wire fences, managed to strike a pretty fair road.

The next day I started out by myself and drove from Findlay to Springfield, Ohio, stopping at Kenton and Urbana, and attending to business in each town. The next day I drove from Springfield to Dayton. On the way, having to ford a stream that was so deep that it wet my feet, the carburator gave two or three good coughs and temporarily resigned. But that was the worst; I ran fifteen miles before I stopped. The water had frozen all over the wheels and axles.

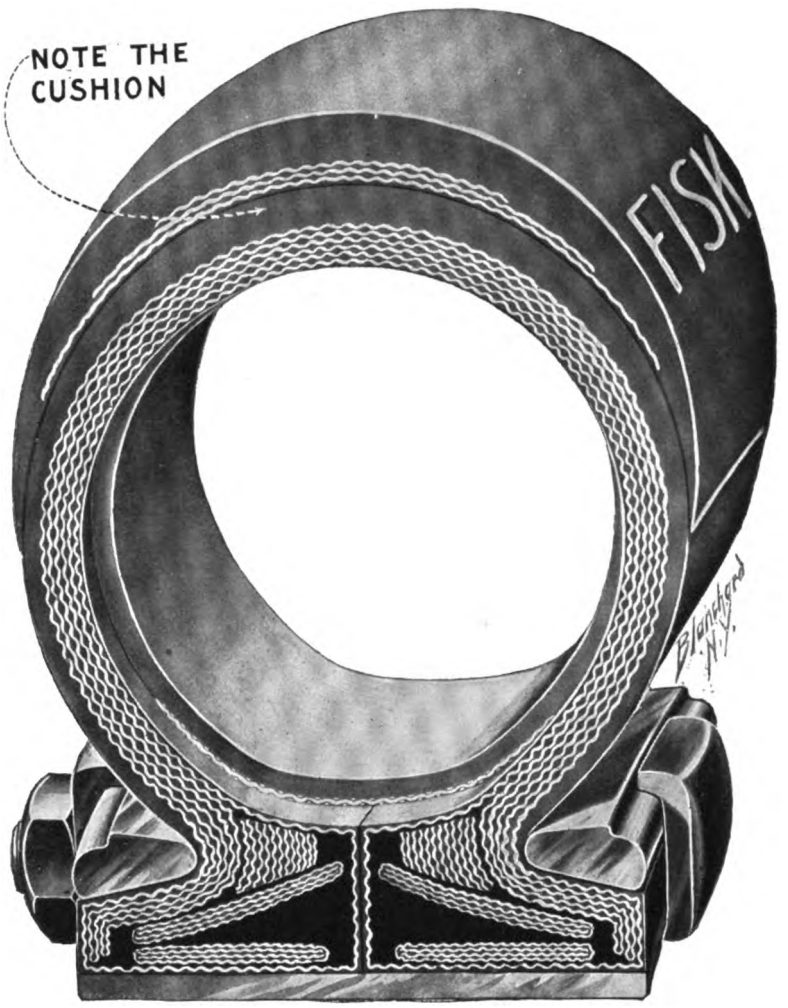
I left Dayton, and in two hours and forty-five minutes I had covered the 64 miles to Cincinnati. I found a fine turnpike nearly all the way, but hills from one end to the other. I had not made one adjustment on the whole trip, which goes to prove what the Wayne car will do in the worst kind of weather and on the roughtest kind of roads.

If any person is thinking of making this trip, kindly advise them to give the road from Bowling Green to Findlay a wide berth.



FRANK GARBUTT, THE LOS ANGELES AMATEUR

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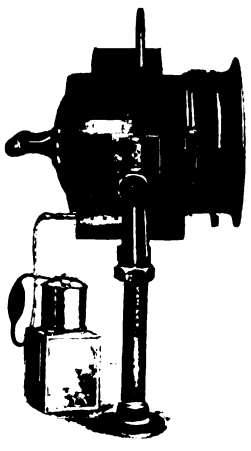
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DON QUIXOTE'S MODERN MOUNT

By Fred E. Dayton

Once upon a time there lived a gallant who had read all the standard works on chivalry and the catalogues of all makers of motor cars. He would sit up till far into the night delving deep into the heroics of knights errant, and he would hurry in the morning, when his more practical nature asserted itself, to study sliding gears, dust deflecting bodies, high compression and air cooling. When the day's farming had been done and Don hied him to the room where was contained his wonderful library he would flip up a cent to determine whether he would read of the romances of princes and palaces or of four-cylinder 30-horsepower cars for $2.50 and other motoring fallacies. The cent would turn head as often as tail, and so Don Quixote became equally familiar with the intrigues of courts and the eccentricities of gas engines.

And so when the time had arrived for him to sally forth, with Sancho Panza, on his tour of misadventure, Don offered tribute to the modern mode of travel and expressed Rozinnante his gallant steed, to the nearest agent. The agent suggested that Don sell Rozinnante direct, urging that a higher price could be obtained, but Don told the agent to sand the rail and back pedal on that argument, as it was moss agate with age. So Rozinnante was placed in dead storage at $5 a month, and Don Quixote departed with a nice little motor car, with Sancho Panza holding on to the tonneau door for dear life.

And as Don Quixote, Sancho Panza, and Rozinnante II were bowling along over the fine highway, there chanced to loom up before them a mighty giant with outstretched wings. The engine stalled from very fright, but Don Quixote was brave. He bade Sancho Panza go forth and tickle the carbureter and do the Bedelia act with the starting crank, which command was speedily obeyed. With fear and trembling, Sancho dismounted from his tonneau position and raised the bonnet to tickle the carbureter and to play organ and go grinding.. And while the motor was thus in a standing position, Don gathered his armor about him and placed his spear in the whip socket. It became necessary to prime the motor before it would turn over, but, when it finally started, Don put his head down over the steering wheel, when the chin strap caught the spark advance and Rozinnante II started forth and charged the windmill.

And whereas Rozinnante, the poor beast of burden, would have bucked and reared and backed away, if not running at a mad gallop for a bran mash and whisp of hay, Rozinnante II did not swerve from his course, and attacked the enemy front ways and by flank movement. The giant windmill lost its head, and its great arms began to swing wildly about. It tottered and careened and then, as Don gave the foot throttle a slight pressure, bounded forth to conclude the work of demolition. When the old mill lay an ignominious admixture of shingles and screws, sails and rods, Don returned with the giant's heart to present to his fair Dulcinea.

And with this adventure added to his credit, and with the knowledge that he had won a most important battle, Don Quixote waxed happy and fat. Nothing disturbed his mind but the occasional wail of plaintive Sancho Panza, who cried out for the garage of which he was to be manager, having swapped his choice of governor of an island for this more lucrative and interesting avocation. This desideratum, however, was frequently postponed, until Sancho Panza had about reconciled himself to a tire maker's competency. But since there remained other worlds to conquer, more adventures to pursue, and a new supply of gasoline in the tank, Don Quixote resolved to tear himself away from some rare old volumes of gallantry and a collection of makers' new catalogues. He had tasted the sweets of advanture, and his soul cried out for more.

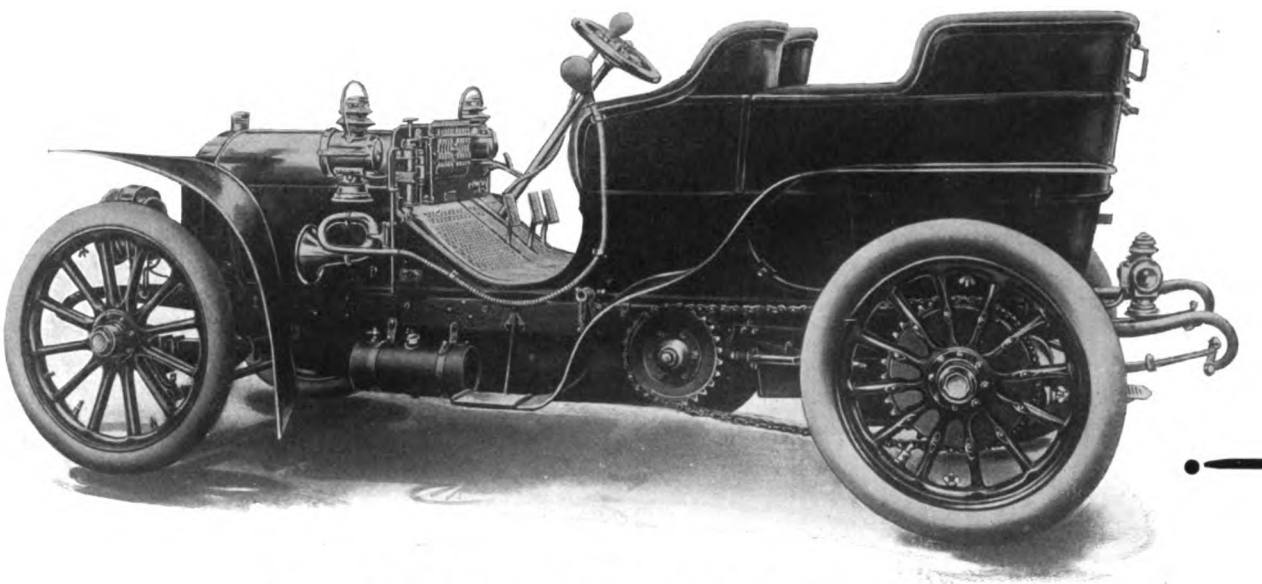
"Fill up the grease cups and bathe the sliding gears," he said to Sancho, and Sancho obeyed with alacrity, which should not be taken as the name of a new lubricant, but as descriptive of Sancho Panza's movement.

And, buckling on his armor, Don took his place in the cushions, and started forth. It was not long before they were out of the city, and a repair man's sign said it was but six miles to his shop. It was here that Don met a convention of buggymakers in the white heat of arguments on how to recoup the trade, and just removed from the scenes of animation were the fair ladies of the party. Don gave the horn to the buggymen of Buggy Junction, but they remained fixed in their places.

"Such insult as I am subjected to, and by knights lower in the heroic scale," said Don to Sancho, who at that moment was cutting out the muffler, and the hot blasts vived with the exhorters. "Stop!" cried the buggymakers' sergeant-at-arms, but Sancho only gave his old boat a little more throttle. He bucked the center, and when inventory was taken of the carnage it was found that the buggymakers were all dead or maimed. And so Don came to a stop, and with Sancho Panza's aid lifted an irate and prostrate buggymaker into the tonneau—another burnt offering for the fair Dulcinea.

And then it was that Don reached a roadside inn, which, in his imaginative mind, was really and truly a castle. A brooklet and bridge approach stood for a moat, and the bowing and scraping innkeeper was nothing short of a king. Motorists all had money and were birds of prey. Surely he could accommodate with food and shelter, and the clerk was told to pen higher prices on the bill of fare. Surely the innkeeper palace master could put his guest in the way of adventure, and suggested that he drive fast in leaving the town. And so it was that a band of armed brigands, dressed in the make-up of the common people, held him up and charged him with a heineous crime—exceeding the speed limit.

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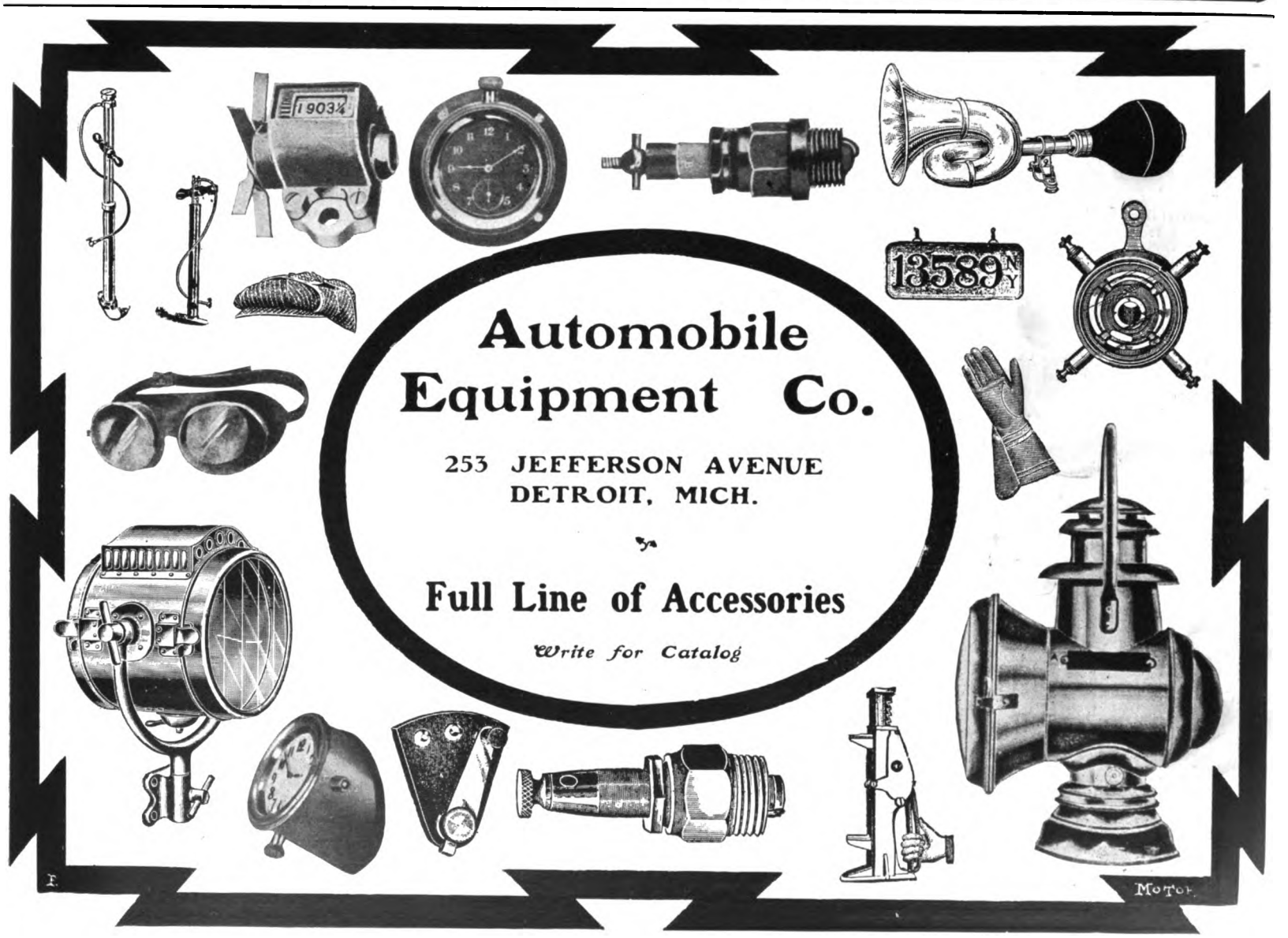
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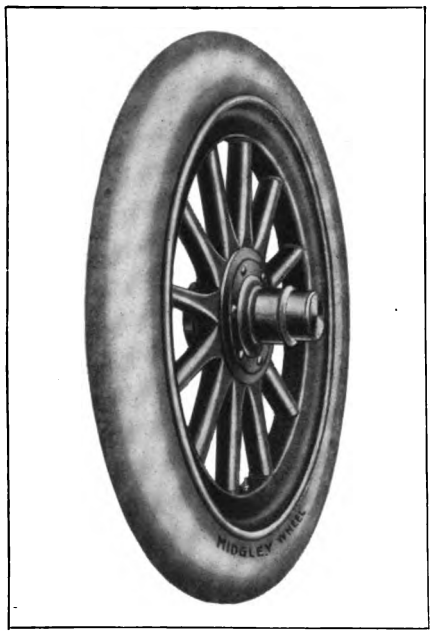
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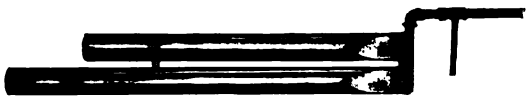
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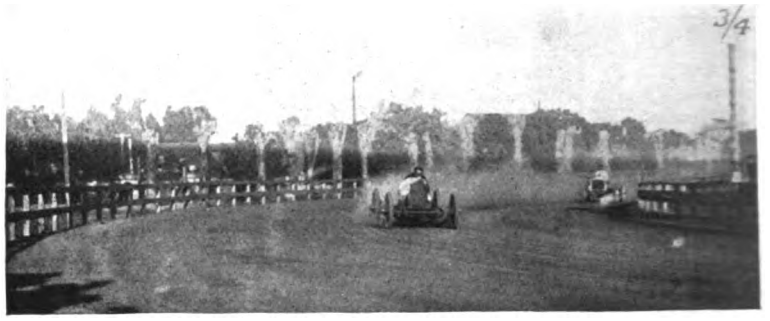
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OLDFIELD "BURNING UP" THE LOS ANGELES TRACK

AN ENGLISHMAN ON THE IDEA OF AN OPEN RACE IN FRANCE

By Charles Jarrott

To the Editor of Motor:

Dear Sir—In giving you my views in connection with the suggestion of the French club holding a big open International race at the same time as the Gordon-Bennett race, I must say that I cannot see the proposition is an unjust one to anyone concerned.

We are all perfectly well aware of the history of the Gordon-Bennett race, and we are aware that prior to the Cup being gained by England the Gordon-Bennett race was run at the same time as the big French race. The fact, however, of England gaining the Cup gave an importance to the race which it had never previously obtained, and now that France has regained what she previously held, I cannot see that in following out the same procedure in running the race she can be considered as taking an advantage or acting unfairly to the other countries concerned.

However, I take it that the real question is as to whether a benefit is being obtained or whether there is a great disadvantage in running two big races together, the Gordon-Bennett race taking a secondary position.

Let us then, in considering this question, consider the present position of the Gordon-Bennett race. It has attained considerable importance in consequence of the last three races, and the result is that, in my opinion, it has developed into a competition so expensive in carrying out, and so unwieldy in the handling, as to make it impossible for the race to go on under the present rules with any degree of success.

A prominent member of the German club told me in Paris that he hoped and prayed that Germany would not win the Cup this year as it would practically mean that the German Automobile Club would be bankrupt.

The experience of our own club on the ground of expense was sufficiently convincing, and I have no doubt that the money which will be spent by the French Automobile Club this year in connection with the Gordon-Bennett race will be enormous.

Added to this there is the difficulty of varying the conditions. Everybody who is competing has a right to have representatives, and international jealousy will, in my opinion, effectually prevent any lines being agreed upon between all countries concerned which will render the race more useful. As the number of countries competing each year becomes more numerous, France has no doubt realized that she suffers under a considerable injustice as compared with other countries—that is to say, there are many more manufacturing firms in France than in any other country, and there are many more firms making racing cars, and it seems only fair that with the large interest she has at stake she should be entitled to a better representation than, for instance, Turkey should have if there were one firm in Turkey who could make three cars to represent that country, or Japan, if some enterprising individual started to manufacture cars in that country.

No one will question me when I say that our French friends are responsible for motor racing. They started it at the commencement, and are as keenly interested at the present time as ever they were in its development. They have manufacturers who are exceedingly eager to compete with one another for supremacy, and, moreover, they have the finest roads in the world for racing, and on top of this the French government—realizing the importance of the industry—is always willing to give their sanction to road events which it has been proved to them are beneficial to the development and furthering of the automobile industry.

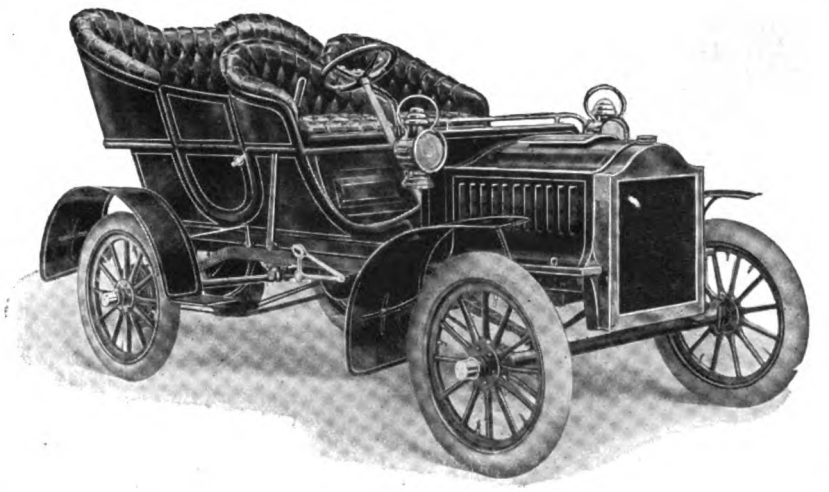
To France, therefore, we have to look for the encouragement of the sport. Their roads are available, and it only seems reasonable that the French club should arrange a race under their own rules, which will give their manufacturers the full benefit of the resources of their country. At the same time they have always extended an invitation to other countries to compete, and the result has been a stimulation to the world's motor industry of the greatest importance.

It may be possible that through the race being run under the rules and regulations passed by the French club we shall have a much more rational class of racing cars than will ever be possible under the regulations of the Gordon-Bennett Cup Race, merely because, for the reasons I have before stated, lack of agreement between the countries will prevent any important modifications being made in the existing rules of the Gordon-Bennett Cup.

It has been said that the great objection to the idea is that the race will be run on a circuit, and, therefore, the Gordon-Bennet competitors

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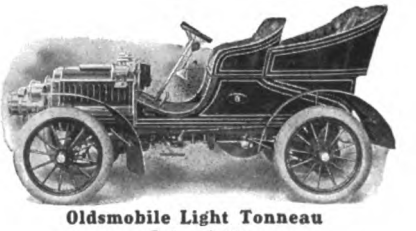
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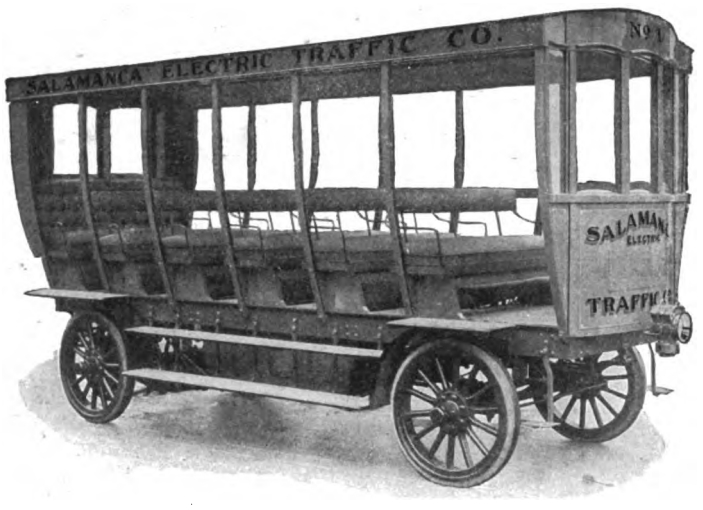
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will be laboring under a very great disadvantage, but surely this is an error, as the chances are equal to all of the competitors, and to suggest that it would be dangerous to run 50 or 60 cars on a big circuit is, to my mind, ridiculous. We have only to refer back to the past to trace the source of accidents in motor racing to appreciate that racing at the present day as a matter of fact is safer than racing two years ago.. Firstly, because the manufacturers have more experience in the building of racing cars, and the cars themselves are stronger and less liable to break in vital parts, and thus cause accidents; and, secondly, because in all the circuit races as now run the course is specially treated with Westrumite, and the dangers of dust done away with.

No race could have been more dangerous than the Circuit des Ardennes in 1902, when between 50 and 60 cars competed over a 53 miles circuit, fearfully dusty and without the road being prepared specially in any way whatever; and yet no one was injured. It has been said that if a large number of cars are allowed on the course a repetition of the Paris-Madrid race would be the result. Surely this is a mistake, as the accidents in Paris-Madrid were not due to any other causes than absurd manner in which people stood about the road, and also the fact that the dust was very bad, as a straightaway course like Paris-Bordeaux could not be treated with Westrumite from end to end.

From the point of view of an interesting race, undoubtedly the event will be much more interesting from a spectator's point of view than would be the case where there are merely about 20 competitors. Everyone remembers the tedious waiting between the intervals of the cars passing in the Gordon-Bennett race in Ireland and also the tedious waits for the same reason in Germany. Very many more cars could have been on the course without danger, and from this point of view alone I see advantages in arranging the two races together.

Another important point must be borne in mind, and that is, that France although exceedingly anxious to have a great event of her own, may not be able to arrange for the course to be kept for three days. The eliminating trials have to be arranged for with the assistance of the government and the military and the civil officials, and it would probably be difficult to arrange two other big events in the year, and from this point of view alone I think the French club are justified in adopting the course they suggest.

And finally, from the point of view of the British manufacturer, surely we must in England welcome the increased chances we have of doing well in a big International contest. For instance, assuming in the Gordon-Bennett Race there are 7 countries competing, making 21 cars, England has on the face of it a 7 to 1 chance. There will probably be 9 cars eliminated in the English eliminating trials, that is to say, there will be 9 cars built in England all capable of racing, which will not be competing in any big event, having been beaten in the English eliminating trials. Assuming then that there are, for instance, 60 entries in the big race, including the 21 Gordon-Bennett competitors, and as no doubt the competitors who were defeated in the English eliminating trials for the Gordon-Bennett Cup would enter their cars for the big International race, she would then have 12 cars competing out of 60, giving her practically a 5 to 1 chance, which would surely be to her advantage; and at the same time the various manufacturers who had gone to the expense of thousands of pounds in building racing cars would have the satisfaction of at least having their cars in the actual event, and having an opportunity of winning instead of being eliminated in a trial—not altogether a race—in which they may have done badly merely through bad luck.

I can see no injustice to England. On the contrary, I can see a benefit accruing from France holding a big open International race, and if in the doing of this she considers it necessary to run the Gordon-Bennett race at the same time, I think the French club are not only within their rights but probably are doing the only thing possible for them in view of the difficulties and expense attendant on arranging a big race separately.

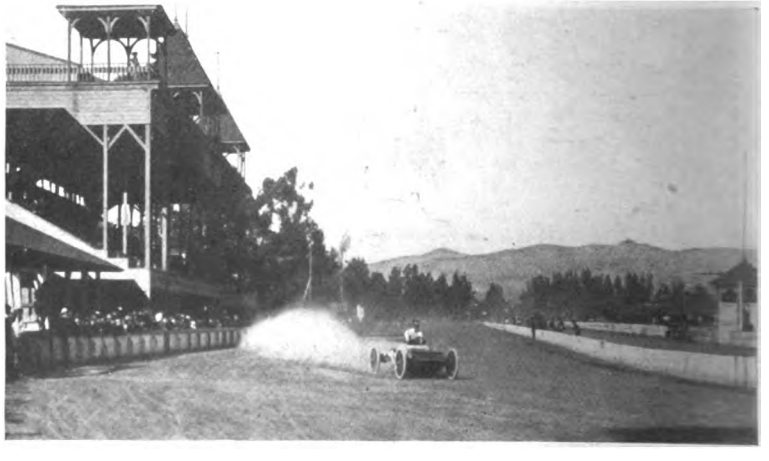
I have not dealt with the question of individual expense to the competitors, but surely the expense would be considerably less if it were split up between 60 competitors instead of 20.

I am, yours faithfully,

CHAS. JARROTT.

London, Jan. 10, 1905.

[Mr. Jarrott is one of the most noted foreign drivers. His views on the question of an open race within which will be included the struggle for the Gordon-Bennett cup will be read with interest.]



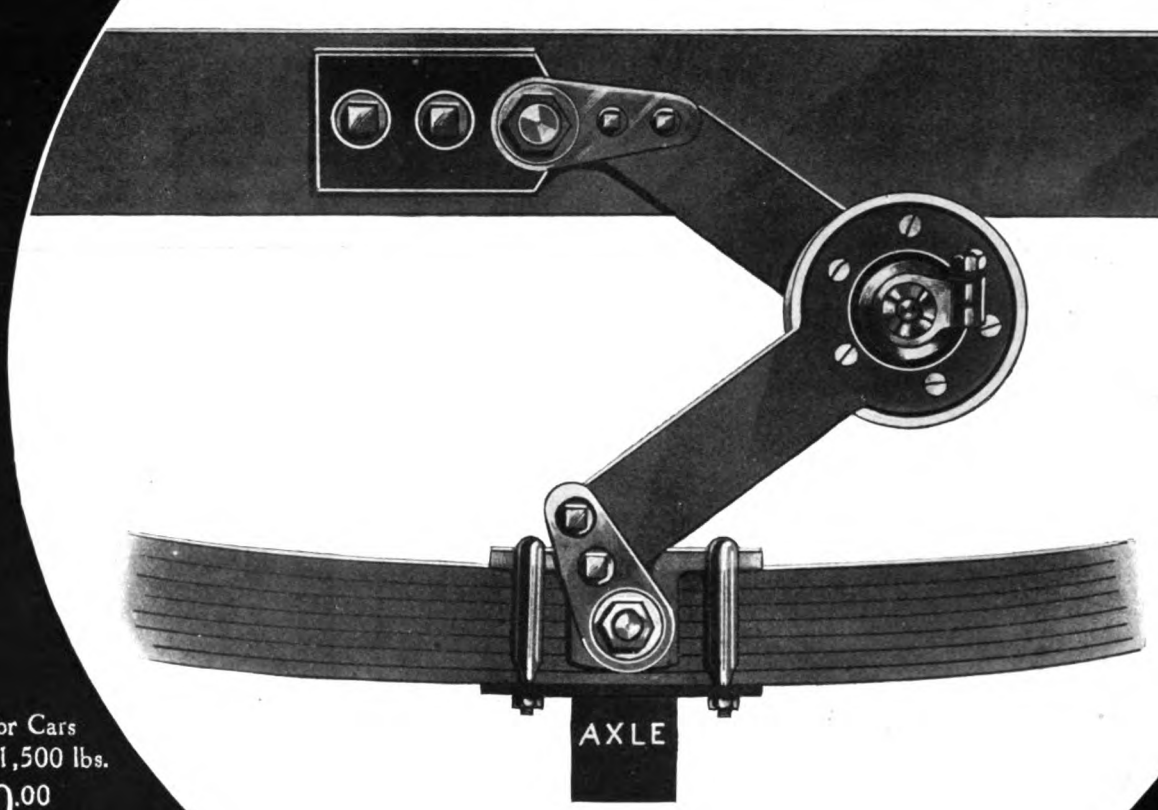
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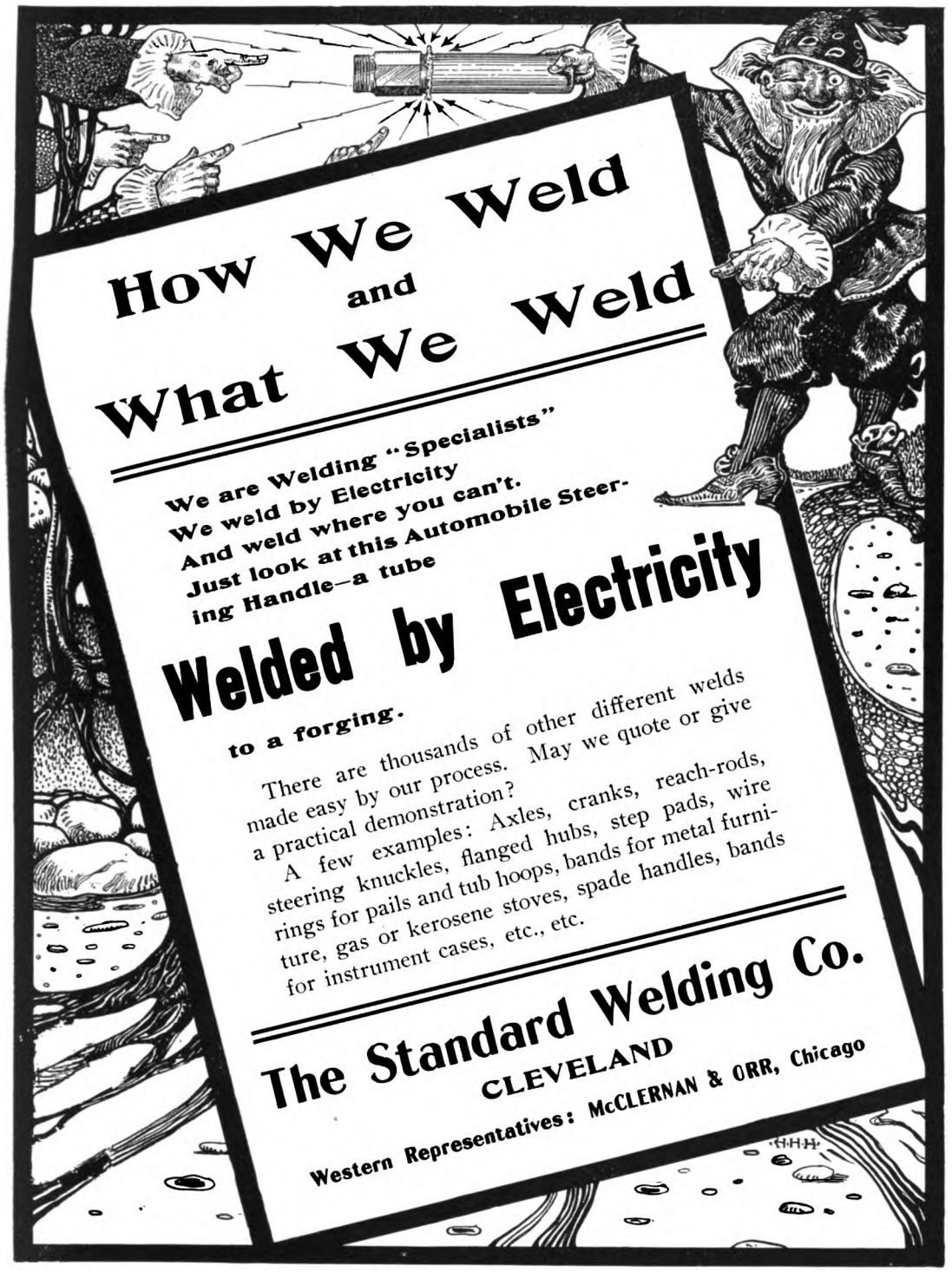
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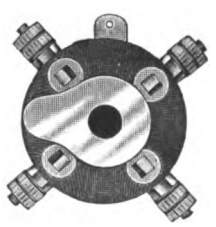
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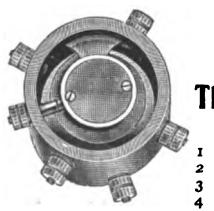
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WED. 1 to Feb. 3	Motor-Boat Races, Palm Beach, Florida
MON. 4 to Feb. 11	N. A. A. M. Show, Coliseum, Chicago.
SAT. 4 to Feb. 19	International Motor Show, Berlin, Germany.
SUN. 5 to Feb. 19	Motor Week, Nice, France
SUN. 5	Motor Racing on Ice, Stockholm, Sweden
THURS. 9 to Feb. 12	International Motor Car and Motor Boat Carnival, Havana, Cuba
MON. 13 to Feb. 18	Motor-Car Show, Detroit, Mich.
WED. 15	Turin Salon, Italy
TUE. 25 to Mar. 11	National Motor-Boat and Sportsman's Show, Madison Square Garden, New York City
FRI. 24 to Mar. 4	Motor-Car and Cycle Show, Edinburgh, Scotland
MON. 27 to Mar. 11	Motor-Car Show, Cleveland, Ohio

MARCH

FRI. 3 to Mar. 11	Motor-Cycle Show, Liverpool, England
SUN. 5 to Mar. 11	Motor-Car Show, Buffalo.
MON. 13 to Mar. 18	Motor-Car Show, Boston, Mass.
WED. 15 to Apr. 9	Motor-Car Show, Copenhagen, Denmark
SAT. 18 to Mar. 25	Motor-Car Show, Agricultural Hall, London
MON. 27 to Apr. 5	Motor-Car Show, Washington, D. C.

APRIL

SAT. 1	Light Van Trials of A. C. G. B. I., over course of 2,000 miles.
	Mediterranean Cup Race.

JUNE

Kiel Fortnight

JULY

SAT. 15	Motor-Boat Contest, Calais to London



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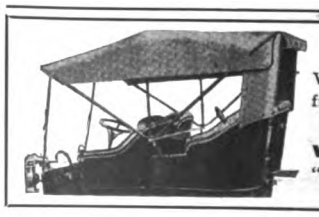
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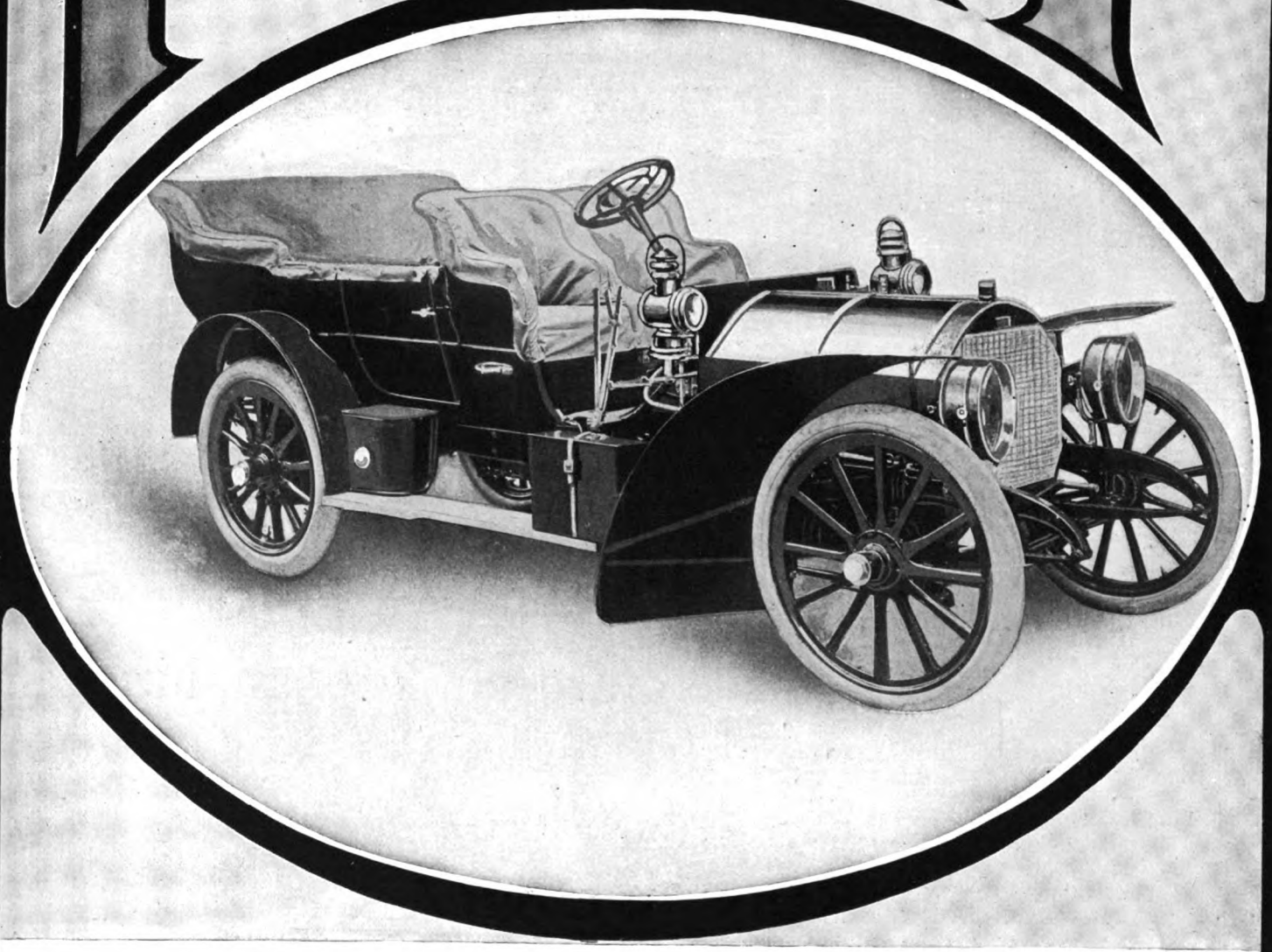
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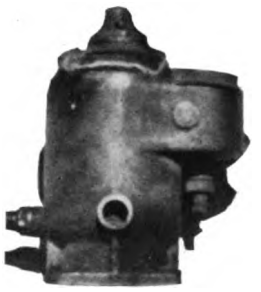
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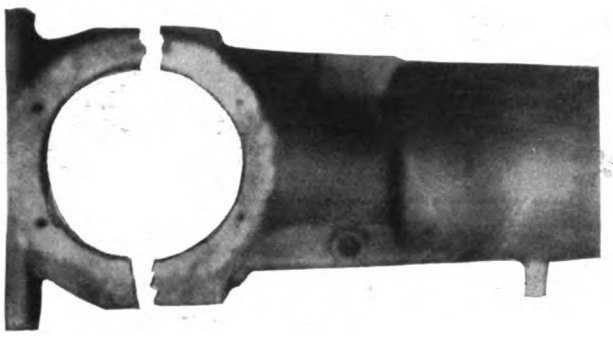
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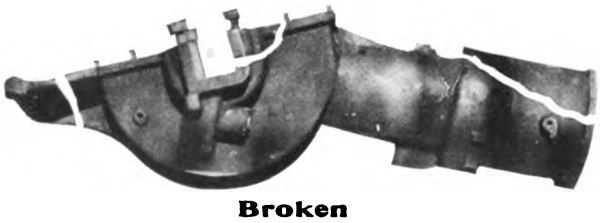
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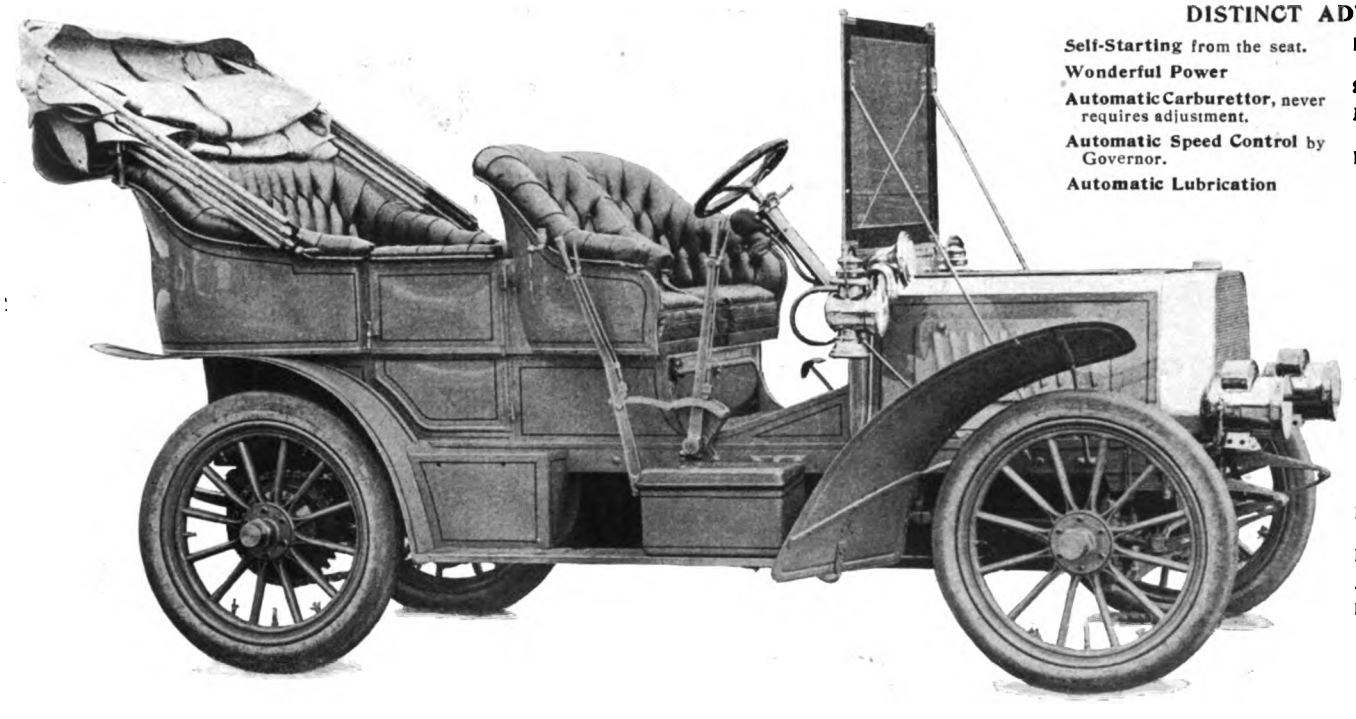
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At Eagle Rock, N. J., Hill Climbing Contest, Nov. 24, 1904, a regular stock "Matheson" 24-H. P. touring car (the *only* touring car that entered strictly fully equipped for touring) carrying baskets, lamps, extra parts, etc., and four passengers, made the hill in 2:21 4-5, defeating twenty seconds to nearly two minutes other touring cars entered ranging 24-H.P. to 40 H.P. and stripped of baskets, lamps, extras, etc. The hill is an even mile long, averages 12 per cent. its entire length and is 19 per cent. near the top. The "Matheson" 24-H.P. stock touring car made the run as above at the rate of nearly 26 miles an hour.

Why should the "Matheson" car defeat others of greater rated H.P. and less weight! The rated H.P. of every "Matheson" car is *guaranteed*.



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Self-Starting from the seat.
Wonderful Power
Automatic Carburettor, never requires adjustment.
Automatic Speed Control by Governor.
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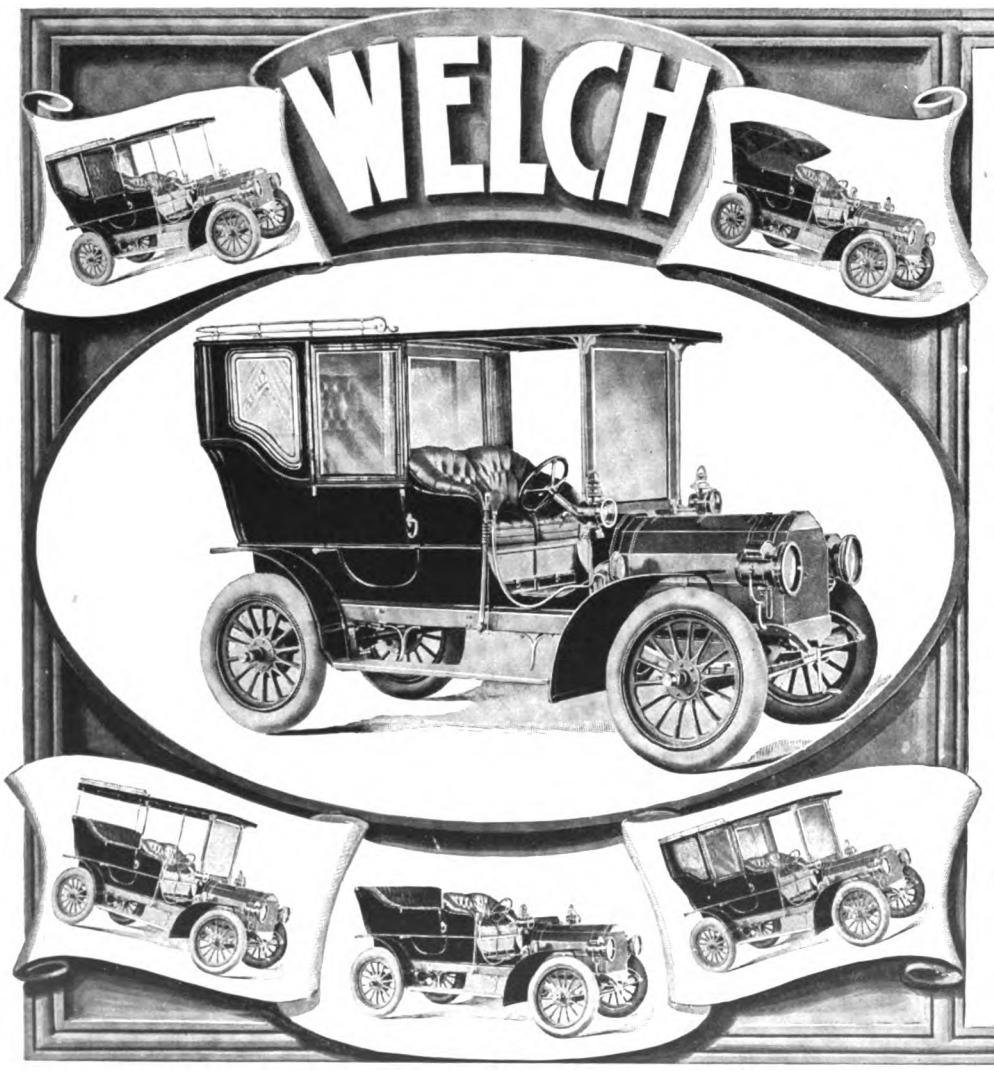
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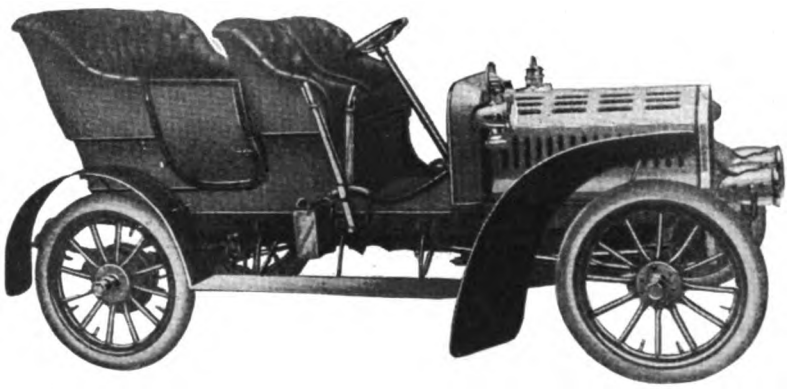
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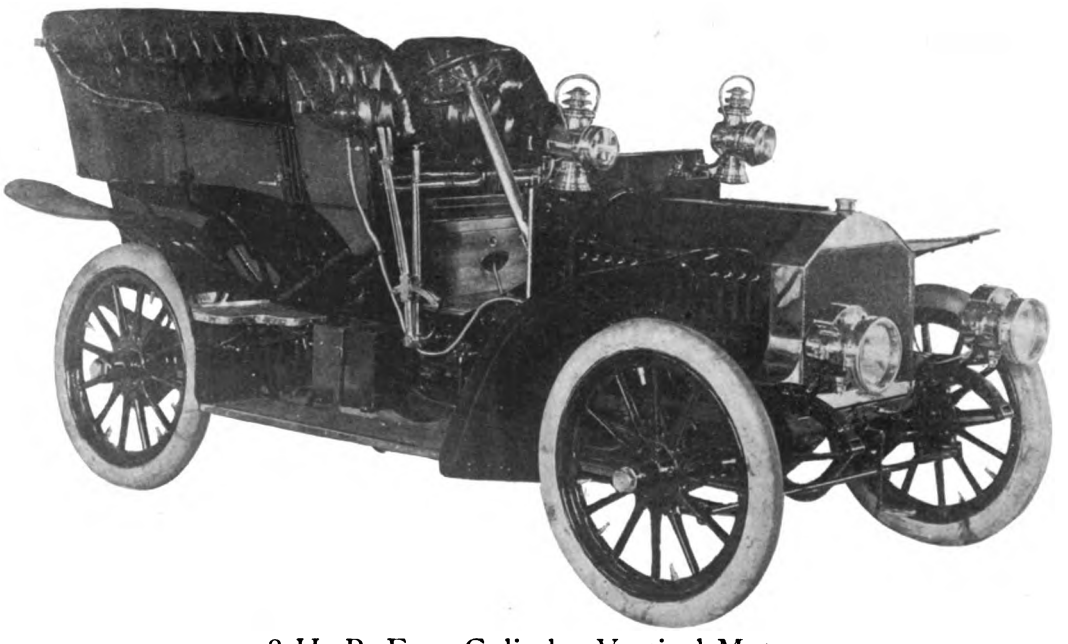
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Direct Start from starting device to crankshaft.

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Everyone who saw us at the New York Show have gone away convinced that

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Furthermore, it must be understood that MOTOR'S decision as regards the winners of the contest will be final.

All inquiries, complaints and other correspondence relative to the contest must, to receive attention, reach us not later than the 15th of February, on which date the contest will be finally decided. All such correspondence should be accompanied by a self-addressed and stamped envelope to insure a reply.

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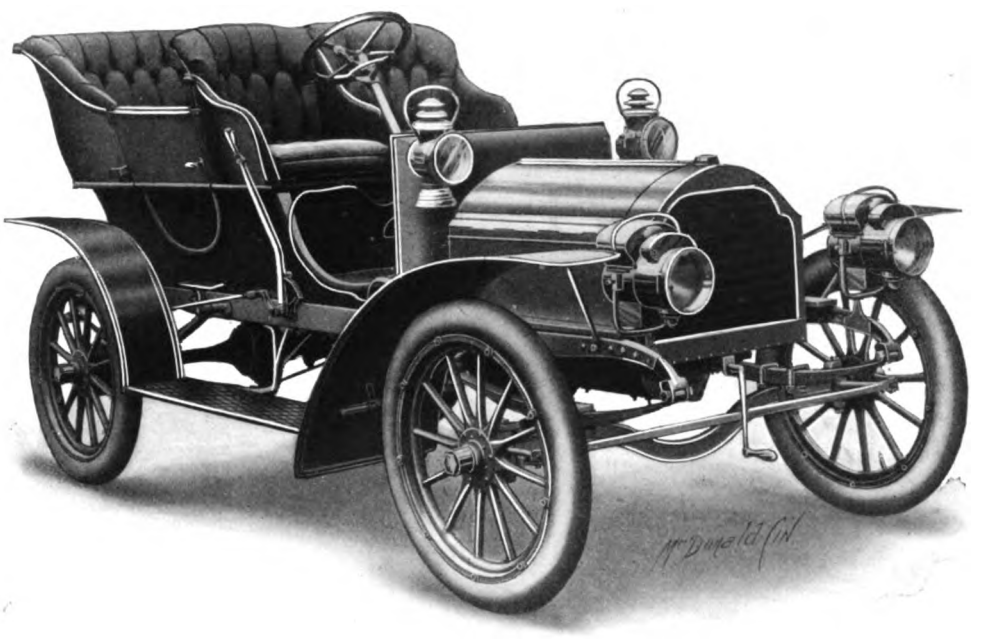
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Catalogue B
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4 cylinders
25 H. P.
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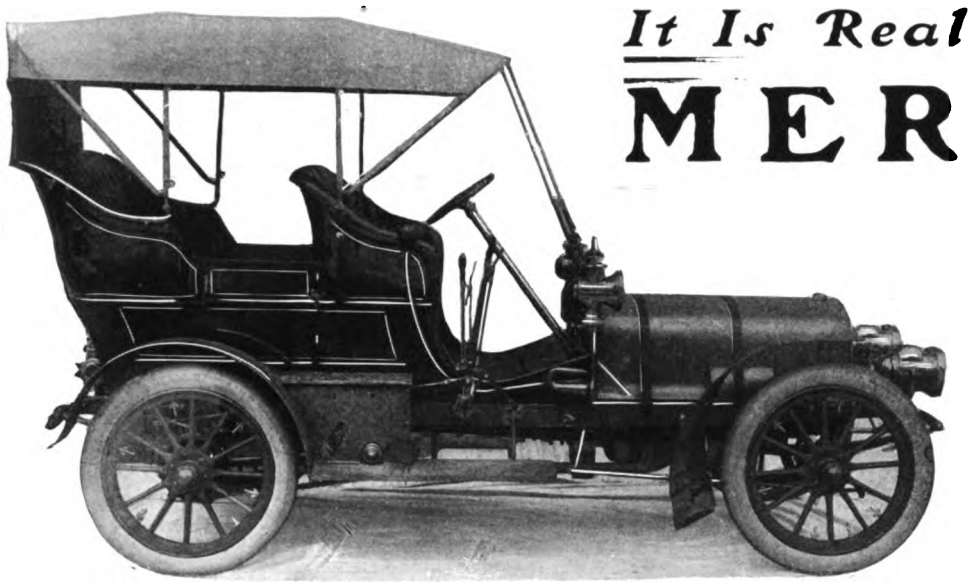
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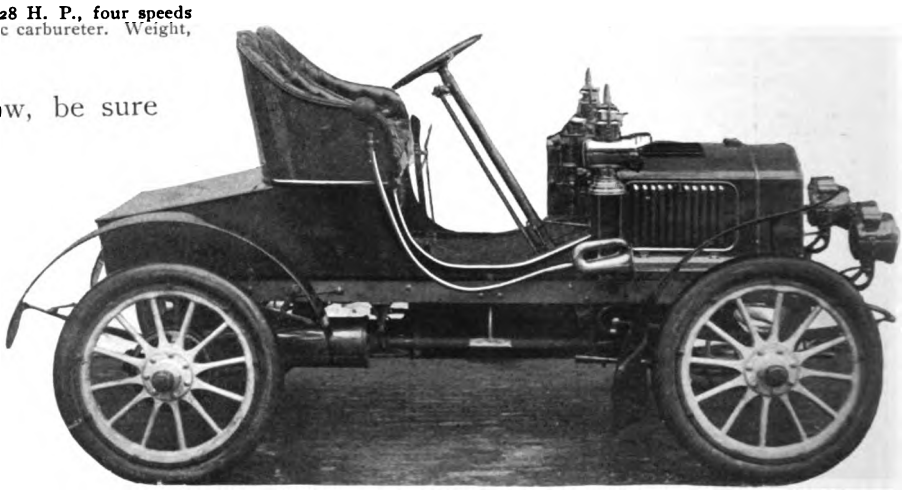
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THE CHICAGO SHOW

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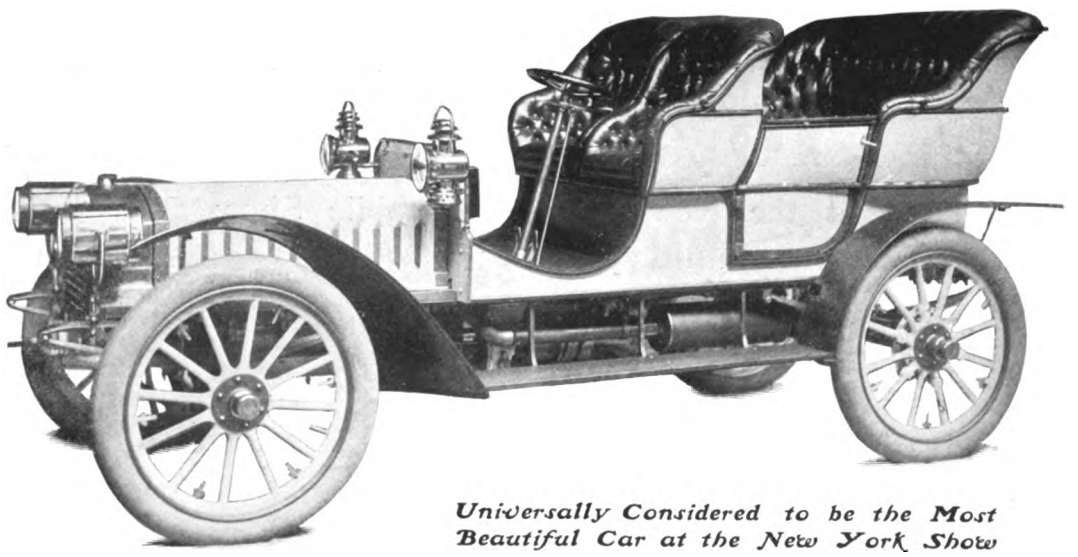
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ACME, Type 10. Price, complete, as illustration, $1000. Two cylinder vertical, 16 H. P., three speeds forward and reverse, sliding transmission, interlocking gear shift and automatic carbureter. Weight, 1175 lbs.

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Universally Considered to be the Most Beautiful Car at the New York Show

50 H. P.
2400 lbs.
$3,500.00

SAME MODEL

35 H. P.
2350 lbs.
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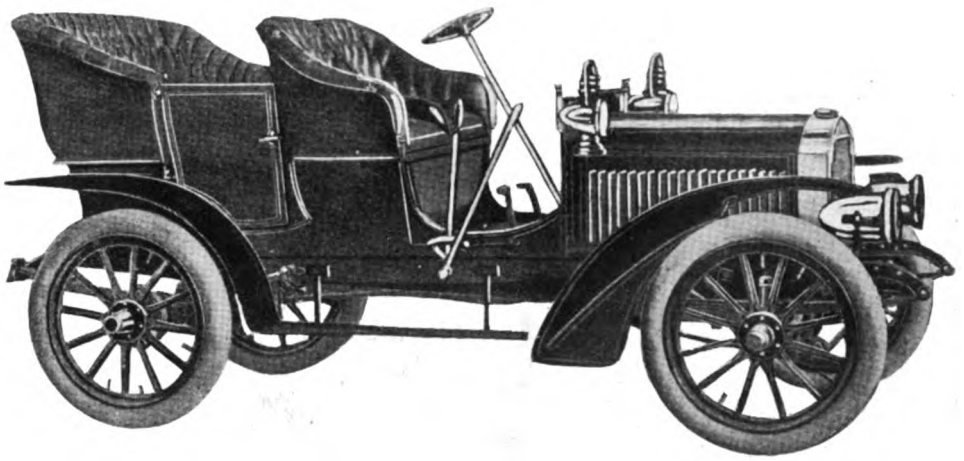
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FRAME
Pressed steel of latest pattern with subframe.

SPRINGS
Semi-elliptic, extra long and flexible.

AXLES
Extra heavy and reinforced to give added strength.



WHEELS
Artillery type, 1¼ in., ball bearing, 34 x 4 in. Clincher tires.

BRAKES
One on each rear wheel and one on driving shaft.

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Propeller shaft and bevel gear.

TRANSMISSION—Three speeds forward and one reverse, with direct drive on the high speed and no idle gears running.

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IGNITION—High tension magneto—imported—guaranteed in every way.

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Price, $2,500

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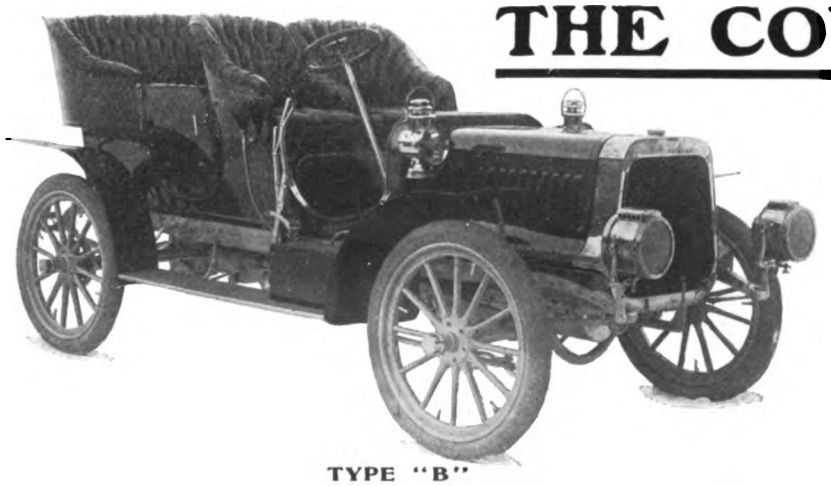


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IT IS A HIGH GRADE CAR AT A MODERATE PRICE

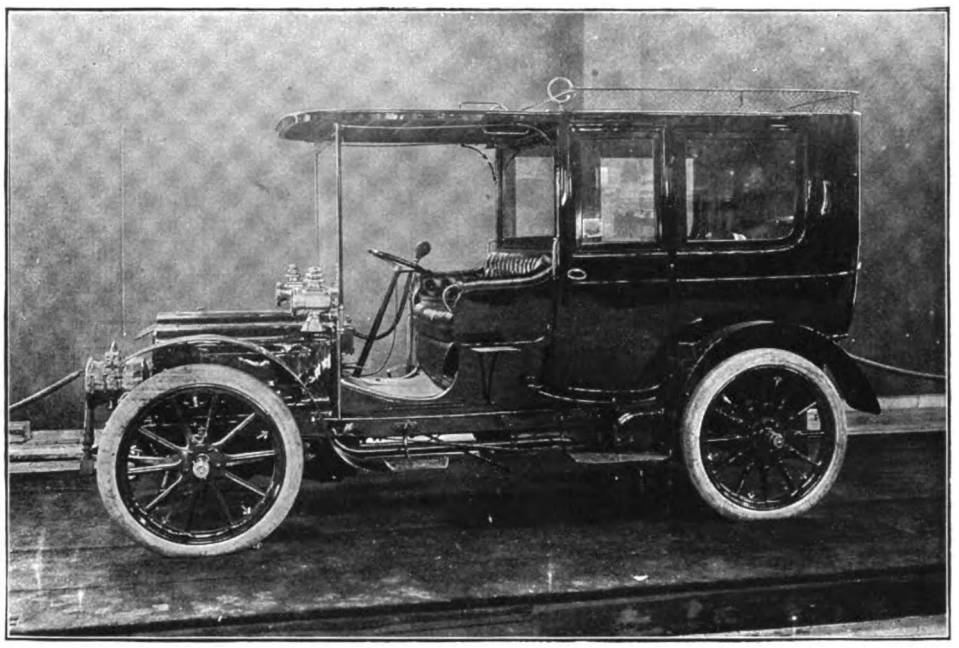
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MORS

48 Rue du Theatre, PARIS



HIGHEST AWARD AT ST. LOUIS

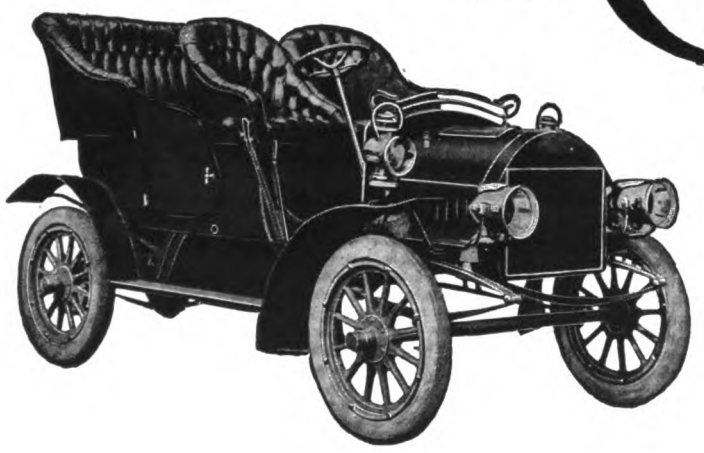
Models for 1905:—12-16 H. P. 14-19 H. P. 19-24 H. P. 24-32 H. P. 40-52 H. P.

For all information, see our DIRECT REPRESENTATIVE, MR. E. LILLIE, Hotel Navarre, New York

We are about to open an American branch of our house, announcement of which will appear shortly.

Meet us at Detroit or Chicago Shows

Reliance DETROIT



16 H. P. (and lots to spare); Price, complete, ... **$1,250**

"The Car too Good for the Price"

EASY SELLERS, because people who know Automobiles can see at first glance that the Reliance is a good car, while novices pick the Reliance because it "looks good to them" for the money; in fact, with purchasers of any class it's "the car too good for the price."

Reliance Transmission is the sliding-gear type, "too costly" for other manufacturers. Works the same over all kinds of roads, requiring no attention to keep it adjusted and thoroughly lubricated, something you cannot say of any other car at anything like the money.

Simple pedal control, both hands free; all speeds without touching gear levers, giving absolute control on the direct drive in tight places; saving on the nerves. Easy for women to operate. Easiest riding car now built at any price. Finest finish and upholstery that can be produced. Smart body with luxurious tonneau and COMFORTABLE side entrances. Wonderful hill chamber. "No noise about it but the horn."

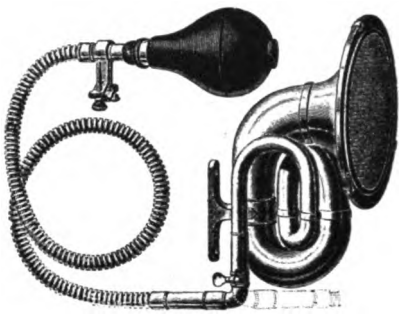
We build it all ourselves; we KNOW it's right.

We have a system of guaranteeing deliveries. Write now for our special terms.

RELIANCE MOTOR CAR CO., Dept. R, Detroit, Mich., U. S. A.

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Autocalimacon



Deep Tone—The best sounding horn made, complete with 40-inch tube and screen. Brass finish, highly polished.

Diam. of Bell,	Length of Tube,	List.
6 inches,	40 inches,	$13.60
8 inches,	40 inches,	17.50

Additional length tubing, per foot, 75c.

Oilgun

Curved Nozzle



Made from brass, extra heavy, will not leak; seamless nozzle. Length, 16 inches; Diameter, 1⅜ inches.

Price, each, $1.00.

Bougie B

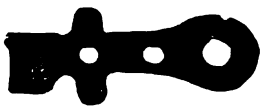
Patented in France and all Foreign Countries.



The Plug of the Auto Expert—Well known by users of fine cars. So many Spark Plugs are offered and claims of superiority made that it is almost impossible to decide what to buy. Buy the Bougie B, use it, if not satisfactory we will refund your money. Once used, always used.

List Price, $2.00.

Wire Terminal



No. 150 Small	List Price, $1.50
No. 151 Large	List Price, $2.00

Cambric Batteries

AND

High Tension Cable

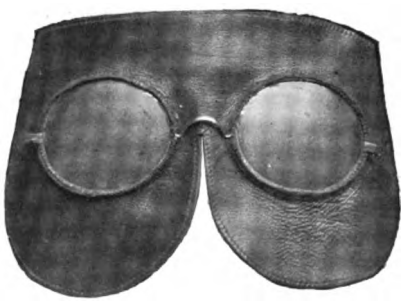


There are just two ways to avoid competition, one is by building more cheaply than anyone else and the other by producing a better article.

The Packard Cable is the better article.

Primary	per foot, 12c.
Secondary	per foot, 25c.
Combination Rubber Insulated	per foot, 25c.

Large Discount for quantity.



No. 97. An all-leather goggle, very strong but soft; tan color, adjustable strap, side protection, close-fitting.

No. 97	List Price, $2.00
No. 98, same as above with nose-piece	List Price, $2.00



French Ammeters	Price, $4.50
French Voltmeters	Price, $4.50
French Combination Ammeters and Voltmeters	Price, $7.50
French Manometers (Pump Gauge)	Price, $3.75

THE MOTOR CAR EQUIPMENT CO.

IMPORTERS AND MANUFACTURERS OF AUTOMOBILE MATERIAL

43 CORTLANDT STREET NEW YORK 1645-1647 BROADWAY

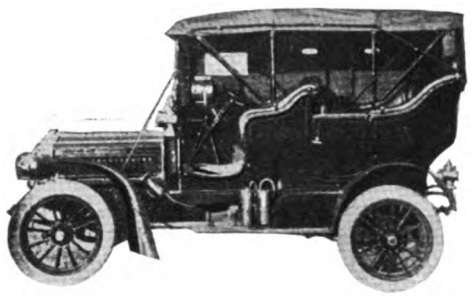
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Col. Sprague's Auto Canopies Cape Tops, etc.

are the best in the world





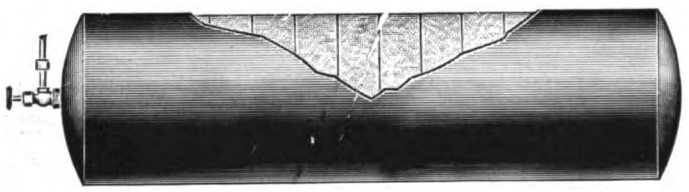


Send for Catalogue

The Sprague Umbrella Co.
Norwalk, Ohio

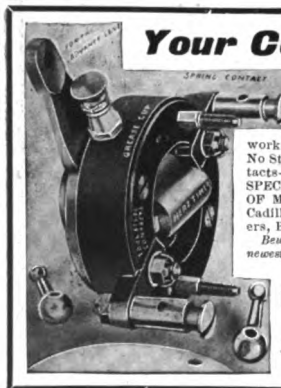


20TH Century



STORAGE CYLINDERS operated exclusively by us under license from the Commercial Acetylene Co. Safe, clean, unvarying lighting for Automobiles, etc. Various size cylinders, 10 to 100 hours. Recharging at small cost. Agencies made with leading dealers throughout the United States. Also see our new line Automobile Lamps.
Address **20TH CENTURY MANUFACTURING CO., 19 Warren St., New York**

Your Commutator



is bad and causes you no end of trouble.

THE HERZ-TIMER

works as promptly as a good watch. No Sticking Vibrator—Tool Steel Contacts—Saving on current 30-75 per cent. SPECIAL TYPES FOR ANY MAKE OF MOTOR—Franklin, Winton, Ford, Cadillac, etc.; also for Primary Igniters, Bullock, etc.

Beware of worthless imitations; get the newest model.

Write for our List to-day.

HERZ & CO.
Ignition Specialties
55 Grand Street
NEW YORK

The "Champion Accumulator."



A storage battery specially designed for ignition.

Sena for Illustratea Catalogue.

A. C. MacRAE,
314 St. Paul St.,
BALTIMORE, MD.

DECAUVILLE

The Car with the Steel Pan which Supports and Protects the Motive Parts

STANDARD AUTOMOBILE CO. OF N. Y.
136 West 38th St., New York



Glad-Hand Soap
THE ENEMY OF GRIME

Excels all other hand soap in quality, material and capacity. It contains no acid and will not harm the skin. As useful to the housekeeper as to the motorist or mechanic.

WILLIS H. IVES, Agt., Addison, N.Y.

NORTHERN
18 H. P. Touring Car

Side Entrance - $1,700 Detachable Tonneau - $1,600
Rear Entrance - $1,500 Front Seats only - - $1,400
7½ H. P. Runabout, $650.

PETER FOGARTY, Agent
142 West 38th Street, NEW YORK CITY

GRE-SOLVENT For HANDS
SQUEAL-SKINS For TIRES
UTILITY PLUGS For IGNITION

THE UTILITY COMPANY, Sole Proprietors
235 Greenwich Street, New York.

HOW TO TOUR BRITAIN

To the Editor of Motor:

Some friends of ours are talking of making up a party and touring the Britsh Isles in motor cars. It is proposed to use three or four touring cars, according to the size of the party wishing to participate, and make a tour of, say, about thirty days, visiting the points of interest that could be covered in that length of time. Each car would carry a chauffeur to have charge of same, and one of the cars in the party a courier familiar with the country to arrange details, look after baggage, etc., and explain points of interest. We would like to have you advise us through the columns of Motor if you would consider such a trip practical, and we would also be very glad to receive suggestions as to the route that might be covered, and any other information that may occur to you. Hoping that you may be able to render us some assistance in this matter, we remain,

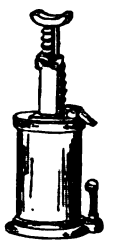
Yours very truly,
CHARLES A. BOWEN.

New Bedford, Mass., Jan. 4, 1905.

Your proposal for a touring party through Great Britain, to cover about thirty days, is perfectly feasible, and should be most enjoyable, if all the details and arrangements are worked out beforehand through the right courier. Presuming that you will cross the Atlantic, either to Liverpool or Southampton, we would advise the following routes: From Liverpool southward along the borders of Wales, via Birkenhead, Chester, Wiescham, Shrewsbury, Hereford, Monmouth, Bristol, and then westward over the old Bath coach road, via Marlborough, Reading, and Maidenhead to London. You will find a map and description of this route in Motor for April, 1904. From London go up the east coast via Colchester, Ipswich, Yarmouth, Norwich, Hunstanton, Lynn, Lincoln, York, Newcastle, Berwick, and Abbotsford to Edinburgh; thence by Lake Katrine to Glasgow. A map and details of this route will be found in Motor for August, 1904. From Glasgow run down to Ayr (Bobby Burns' country), Keswick, Ambleside, Kendal, Lancaster, Preston, and Ormskirk back to Liverpool.

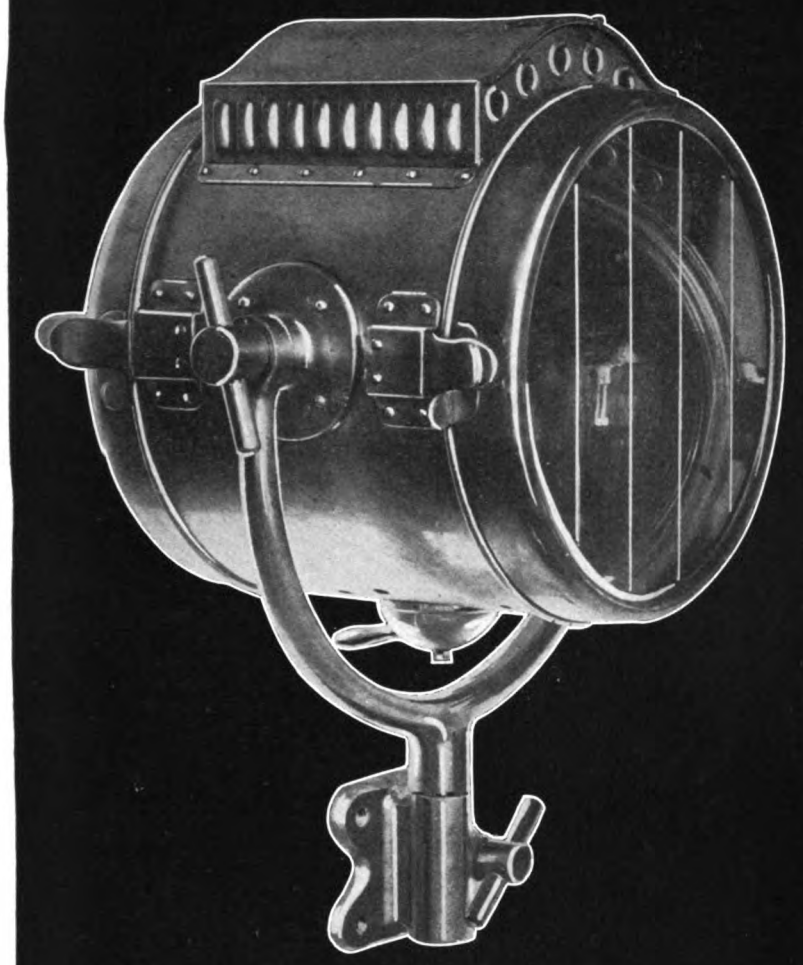
If Southampton is your port of landing, take in nearby Winchester and Bournemouth, then turn along the south coast via Chichester, Worthing, Brighton, Eastbourne, and Hastings, turn north via Tumbridge Wells to London. From London follow the previously described east coast route to Edinburgh and Glasgow. Return south via Carlisle, etc., to Liverpool by the route already advised. Then follow the route described in April Motor to Bristol and Bath, but at Bath, instead of continuing eastward to London, turn off via Salisbury and Winchester to Southampton.

As every owner of a heavy car knows, it sometimes is no inconsiderable labor to work the ordinary lifting jack. To avoid such labor is the object of the pneumatic jack, exhibited for the first time at the 1905 Madison Square Garden show.



This jack may be operated by an ordinary tire pump, or, better still, by a reservoir of compressed air or exhaust gases about the car. It consists essentially of a pneumatic cylinder in which there works a piston, and it is capable of extension from ten and one-half to twenty-four inches, and is powerful enough to raise the heaviest car. To drop the car after it has been raised, it is necessary only to touch a lever, when the air rushes out, slowly or rapidly, as may be desired, permitting the car to settle easily to the ground. That the use of this jack must greatly minimize the work of changing and repairing tires is most evident, and the success of the pneumatic jack in other fields is sufficient guarantee of its worth.

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DIETZ

MIRROR LENS SEARCHLIGHTS

We offer a new design with many attractive features. The back of the Lamp is hinged so as to provide ready access to the reflector. All are fitted with best quality Mirror Lenses, properly shaped and focussed to give the best results in use on automobiles.

We are prepared to furnish handsome and strong brass brackets (both shifting and stationary) for these lamps.

The Lamps are made in three sizes, 6", 7" and 8".

DIETZ

OIL LAMPS

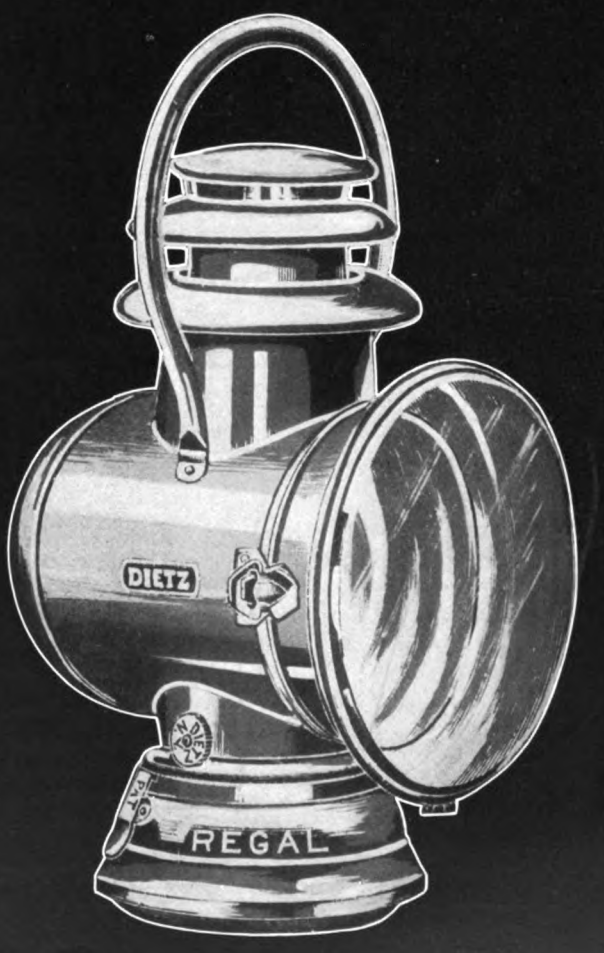
We have made several improvements in our Oil Lamps this year. These improvements, while they make but little difference in the outward appearance of the Lamps, are quite an addition to their present good qualities.

The bodies of the Lamps are drawn from one piece of heavy gauge high-grade brass, and the reflector is made of aluminum and removable at will for polishing.

They are unquestionably the HANDSOMEST, STRONGEST, BEST BURNING LAMPS ON THE MARKET.

R. E. DIETZ COMPANY

Established 1840. 27 LAIGHT STREET, NEW YORK

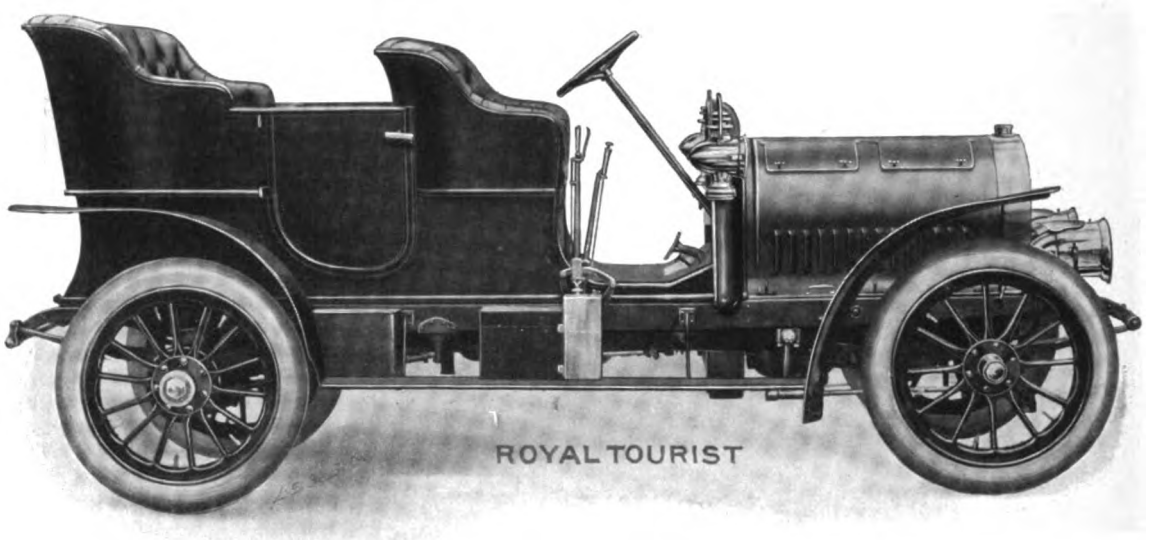


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THE ROYAL TOURIST

TRUE BLUE



32-38 H. P. **Guaranteed** **2,500 lbs.**

Its equal has never been produced before.

$3,000.00

Write Department 9 for full description.

ROYAL MOTOR CAR CO., Cleveland, O.

NEW ENGLAND AUTO CO.
182 Columbus Avenue, Boston

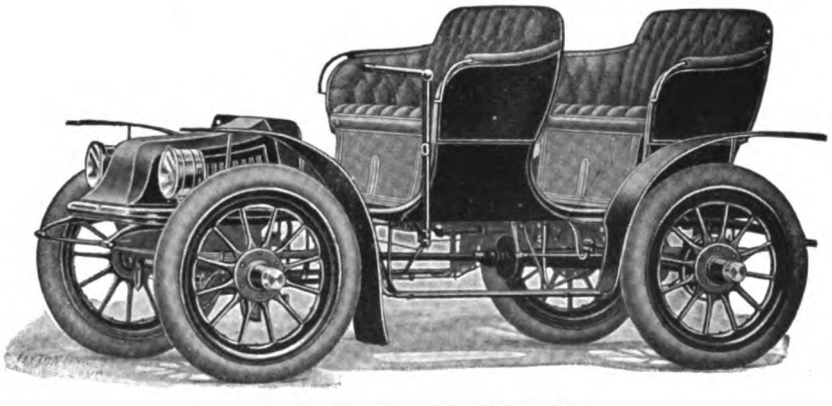
C. A. DUERR & CO.
Broadway and 58th St., New York City

HARRY BRANSTETTER CO.
Chicago

Baker

Stands for Distinctive Quality Classification, the Highest Type of Electric Carriages

Simple, Silent, Safe, Clean, Satisfactory



Costs Less to Maintain than any Automobile Made

The **BAKER SURREY**

Weight, with Passenger Load, 2200 Pounds *Motor, 2 1-4 H.P.* *Battery Equipment, 24 Cells*

THIS motor is the same size and possibly less and the battery is the same weight and size and possibly less than other electrics require for two-passenger stanhope or runabout that speed no faster nor make more miles on a single charge of battery. NOTE this as an illustration of what we mean by superior practical efficiency of Baker construction.

WE MAKE RUNABOUTS, STANHOPES, DOCTORS' CARRIAGES BASKET SEAT, CANOPY TOP, ELECTRIC *Send for Catalog*

The Baker Motor Vehicle Company, CLEVELAND OHIO

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THE MITCHELL

The Car that takes you "there and back"

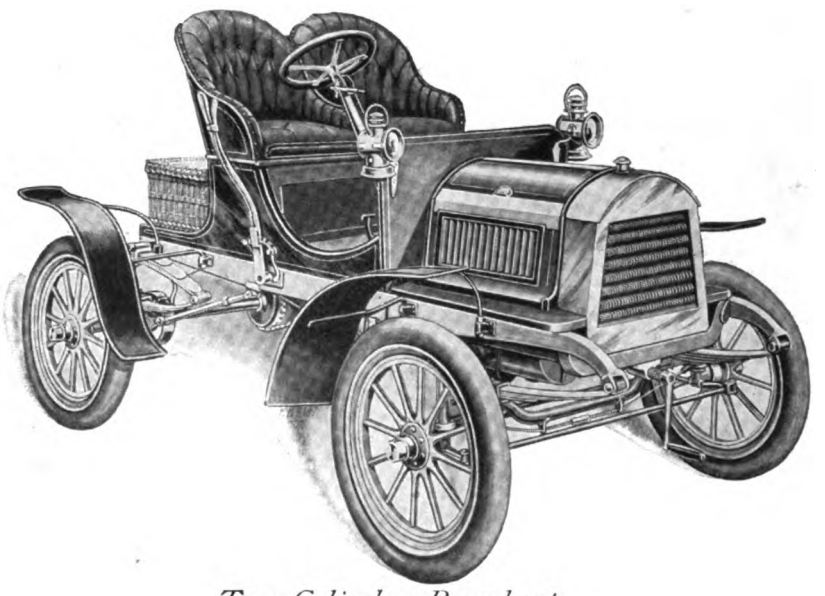


Four-Cylinder Side Entrance Tonneau Car
20 H. P., $1,500.00

Standard in construction
Quiet in operation
Smart in appearance
Smooth running
One actual horse power for every eighty-five pounds of weight

The Mitchell Light Car stands out clear and distinctive from all other American-made runabouts.

There is nothing quite like it. It is as carefully designed, as up-to-date, and as smart in appearance as any three or four thousand dollar car.



Two-Cylinder Runabout
9 H. P., $750.00

All working parts of the Mitchell Cars are unusually accessible, and for simplicity of design the car has no equal.
The Mitchell embodies all the good features of the best, at a price that does not place it out of the reach of the average buyer.

"The Car you ought to have, at the price you ought to pay."
"Try one and you will buy one."

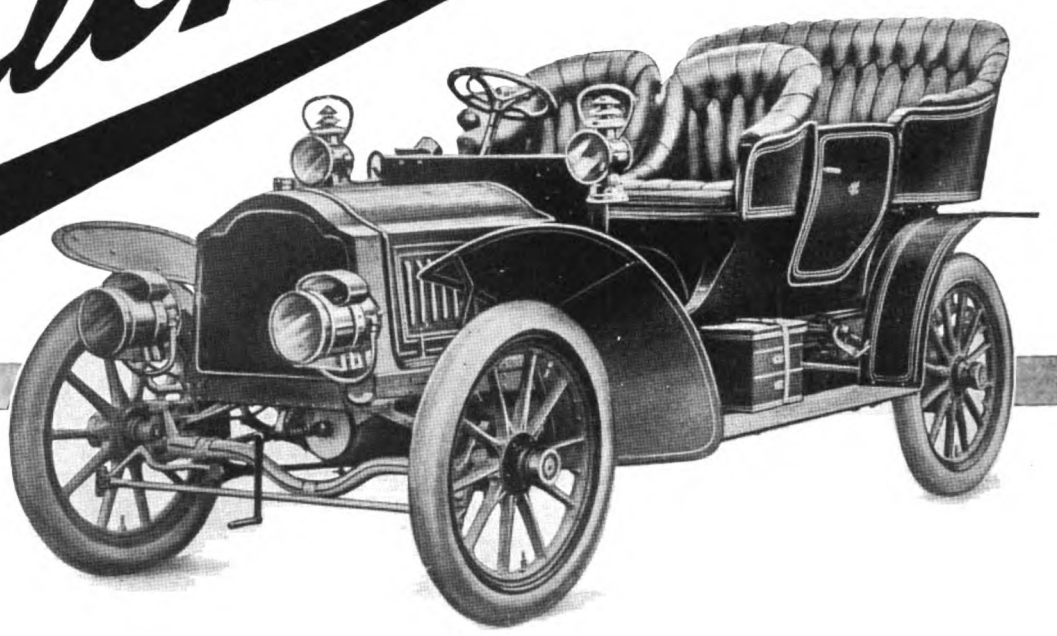
Mitchell Motor Car Company

160 Hamilton Avenue, Racine, Wis.

C. A. DUERR & CO., Inc., Broadway and Fifty-eighth St., New York, Distributors.

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Packard



Every thought of the Packard organization, every facility of the Packard plant is concentrated upon one type of car.

The Packard Company is one of the pioneer manufacturers. We have never built anything but touring cars, and our history is one of development with a single object in view.

The success of the four-cylinder Packard during 1904 bespeaks how well we planned. Instead of scattering our energies over a line of different cars, we have concentrated everything on this one type and in presenting it again in our Model "N," we offer a car that has graduated from the school of hard knocks, that has no single piece in it but has stood the test of at least a year's use in the hands of the public. In other words—a car refined and beautifully seasoned and, because we are specialists in this one thing, better than anything else of its kind in the world.

The price of the Model "N" (with standard equipment) is $3,500.00 f. o. b. factory.

Complete specifications and a full description of both Model "N" and Model "L" cars are given in our new catalogue. To those who will write us we will gladly send this book and point out the advantages of the many exclusive Packard features.

PACKARD MOTOR CAR CO., Dept. 6

Member of A. L. A. M.

New York Branch
1540 Broadway

DETROIT, MICH.

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Why

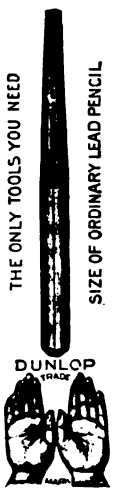
The Perfected Dunlop Detachable Tire

is the most DURABLE

It is the only Automobile Tire that can be and is completely

OPEN STEAM CURED





The DUNLOP began where mechanically fastened tires have left off

The only Automobile Tire that does not require lugs or other mechanical fastening

Look for sign "DUNLOP" at all shows

THE HARTFORD RUBBER WORKS COMPANY

Factory No. 1 and 2, Hartford, Conn. Factory No. 3, New Brunswick, N. J.

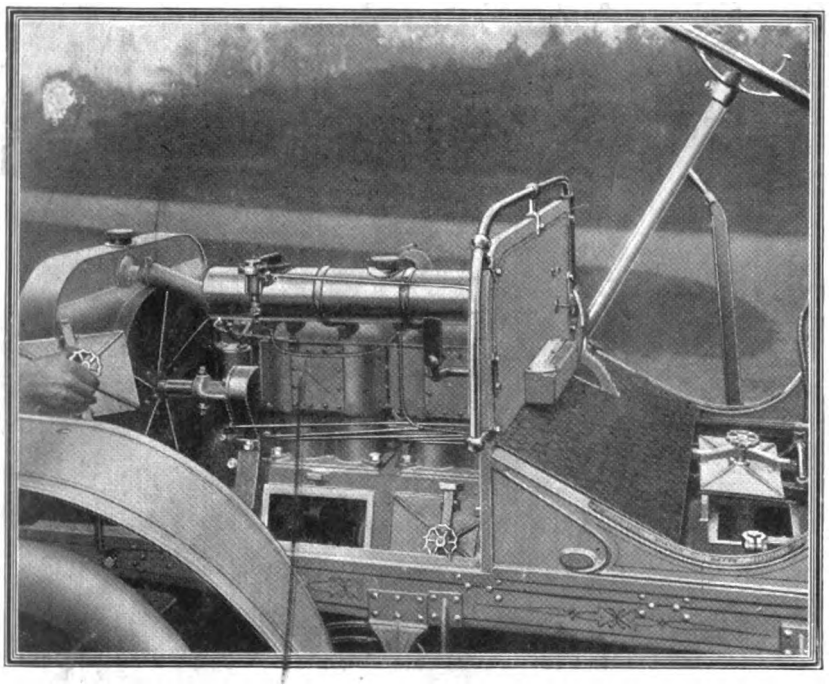
BRANCH HOUSES

BOSTON	BUFFALO	CHICAGO	DENVER
NEW YORK (2)	CLEVELAND	ST. LOUIS	SAN FRANCISCO
PHILADELPHIA	DETROIT	MINNEAPOLIS	LOS ANGELES

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WINTON

Accessibility---What It Really Is



THIS illustration shows the four cylinder vertical WINTON, with bonnet removed and front floor board lifted, picturing the actual and easy accessibility of our new construction.

For Inspection of Motor Parts and Bearings, simply turn a single hand screw and remove the cover. Time, five seconds. Size of opening 8 x 5 inches—not a mere peep hole. There are two such covers and openings. One cover is shown removed. See the crank shaft and connecting rod in the picture? Simple, isn't it?

To Remove Working Parts of Motor (crank shaft, connecting rods and pistons) unscrew one side of crank case — same side as inspection openings. Remove this side piece and lift out working parts. No reason whatever for removing cylinders from crank case, nor for disturbing water, oil, or electric connections. All done with minimum effort—as it ought to be, but possible only with Winton construction.

To Inspect and Adjust Transmission, turn hand screw as on crank case, and remove cover, as shown in illustration. Time, five seconds.

To remove Transmission (practically **never necessary** with Winton unbreakable clutches) unscrew upper half of case and lift out the works. Done about as quickly as changing cuffs.

This **IS** accessibility. It is an advantage enjoyed **exclusively** by 1905 Winton purchasers.

We needn't tell you the agony of inaccessibility. If you have had a vertical motor of other make, you know. If you haven't, ask any seller of not-Winton vertical motors how he removes motor working parts and transmission. Make him **SHOW YOU.** The contrast will prove our statement that Winton 1905 Accessibility is valuable beyond price.

Accessibility is **just one** Winton superiority. Lubrication, Ignition, Control, Springs and Simplicity are others. Shall we send you Catalog No. 6, which explains them?



Five Models—All with Four Cylinder Vertical Motors.

Model C	16-20 H.P.,	$1,800
Model B	24-30 H.P.,	2,500
Model B Limousine	24-30 H.P.,	3,500
Model A	40-50 H.P.,	3,500
Model A Limousine	40-50 H.P.,	4,500

POLAR COMPOUND keeps water fluid at 10° *below* zero. One filling lasts all winter. 25c. per gallon, f.o.b. Cleveland. Shipping cans extra—5 gal. 50c., 10 gal. 75c.

The WINTON MOTOR CARRIAGE CO

Member Association Licensed Automobile Manufacturers

CLEVELAND, OHIO, U. S. A.

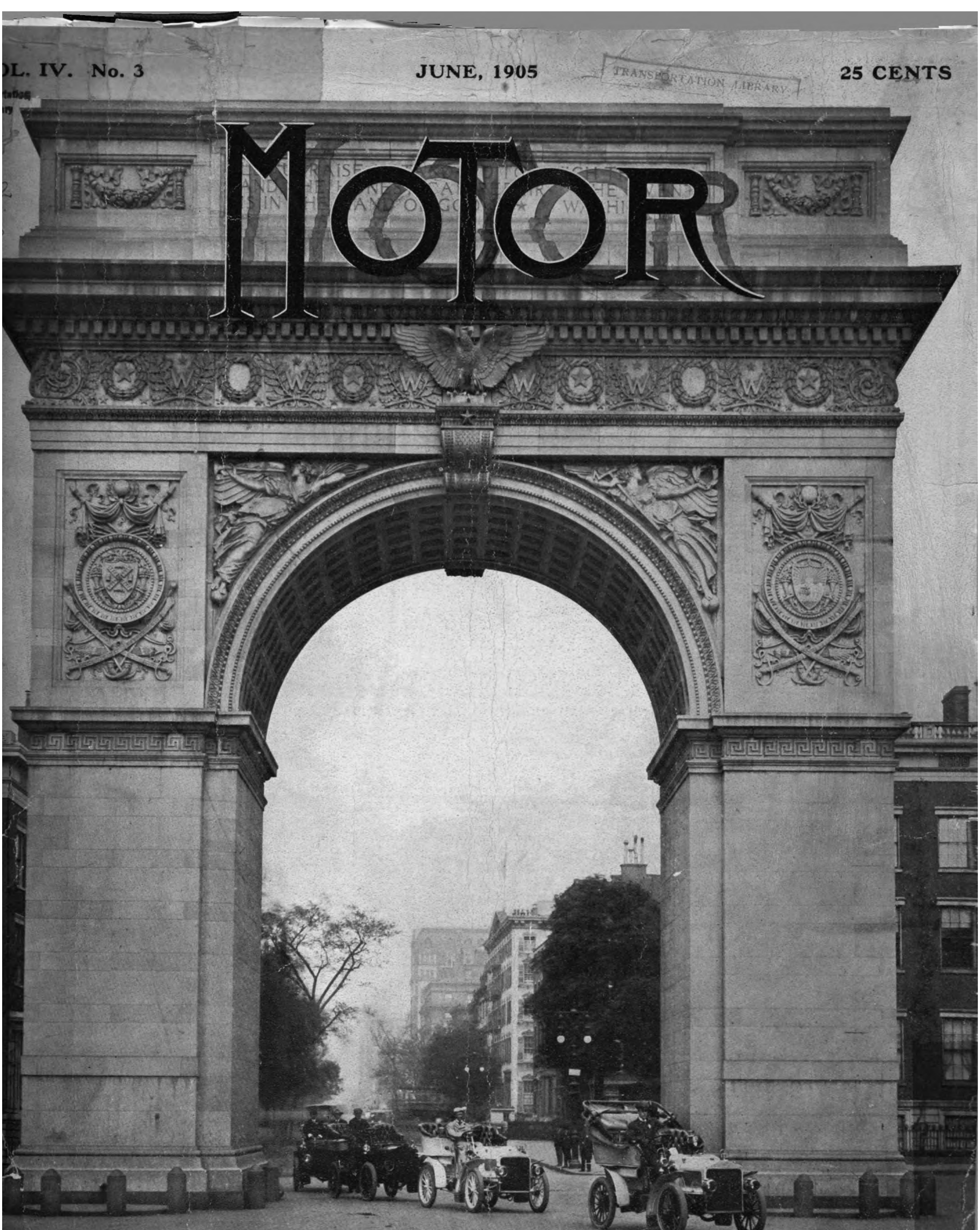
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OL. IV. No. 3 JUNE, 1905 25 CENTS

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MOTOR



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MOTOR,
1789 Broadway, New York City

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Peerless Wins Thousand Miles



CRANKING MOTOR AT THE START OF 1000 MILE RACE

Miles	Elapsed Time	Miles	Elapsed Time	Miles	Elapsed Time
50	1.04.04	400	9.25.19	750	19.43.55
100	2.09.44	450	10.59.56	800	20.55.56
150	3.35.25	500	12.20.34	850	22.21.36
200	4.43.04	550	13.52.03	900	23.28.36
250	5.58.36	600	15.17.15	950	24.36.28
300	7.04.40	650	16.50.06	1000	25.50.01
350	8.18.43	700	18.09.59		

1000 MILE RECORD IN 24 H. P. PEERLESS

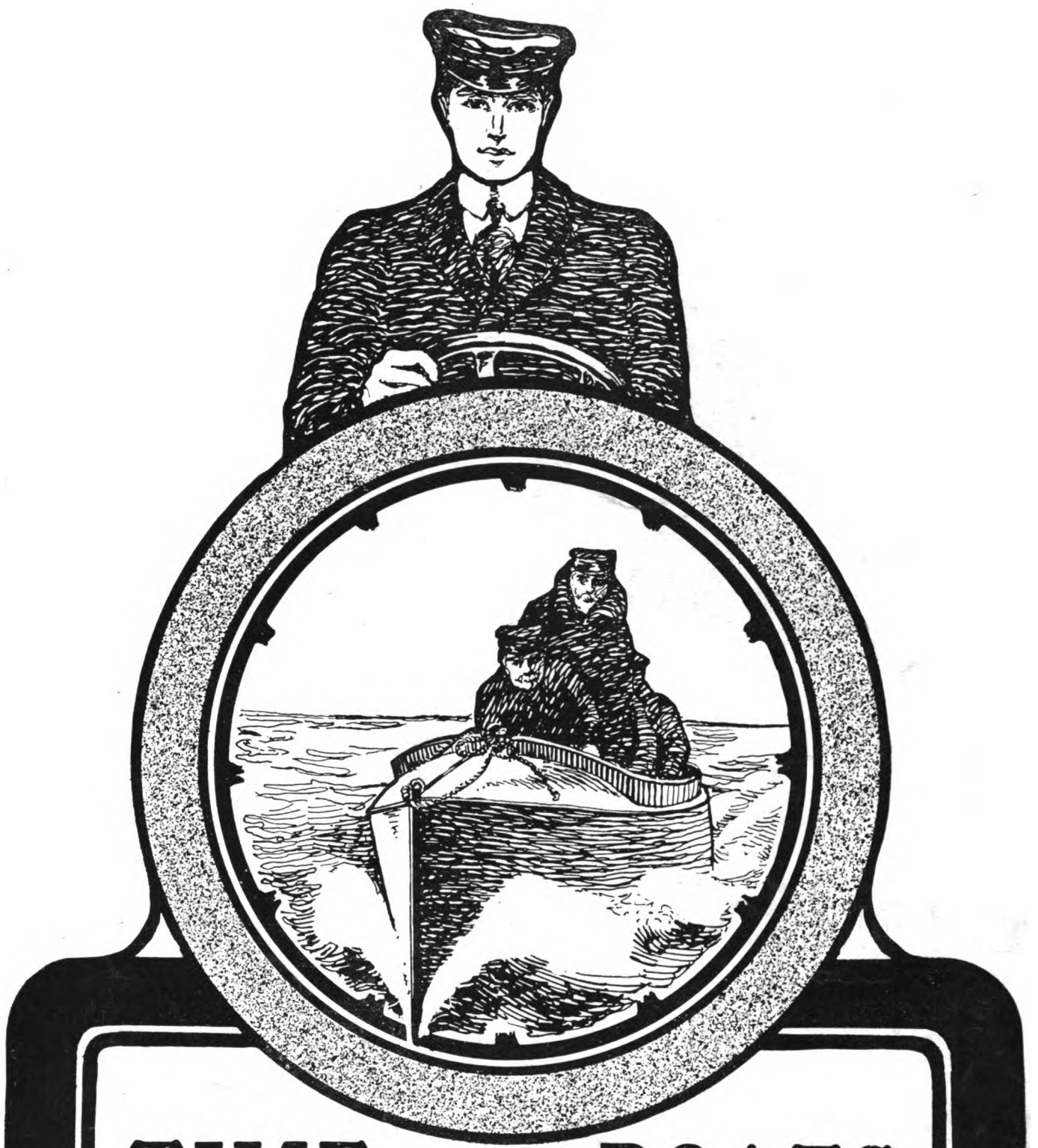
by C. G. Wridgway at Brighton Beach, May 5th and 6th. Beat the previous record by 4 hrs., 3 min., 31 sec., and was made without stopping the motor. This is still another victory that proves the significance of Peerless reliability, for a car that can make such a record for 1000 miles can certainly be relied upon to stand the strain of the longest tour and cover the distance in record time.

Send for Catalogue and Booklet of "Peerless Achievements"

The Peerless Motor Car Company, CLEVELAND, O.

MEMBER A. L. A. M.

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TIME FOR BOATS

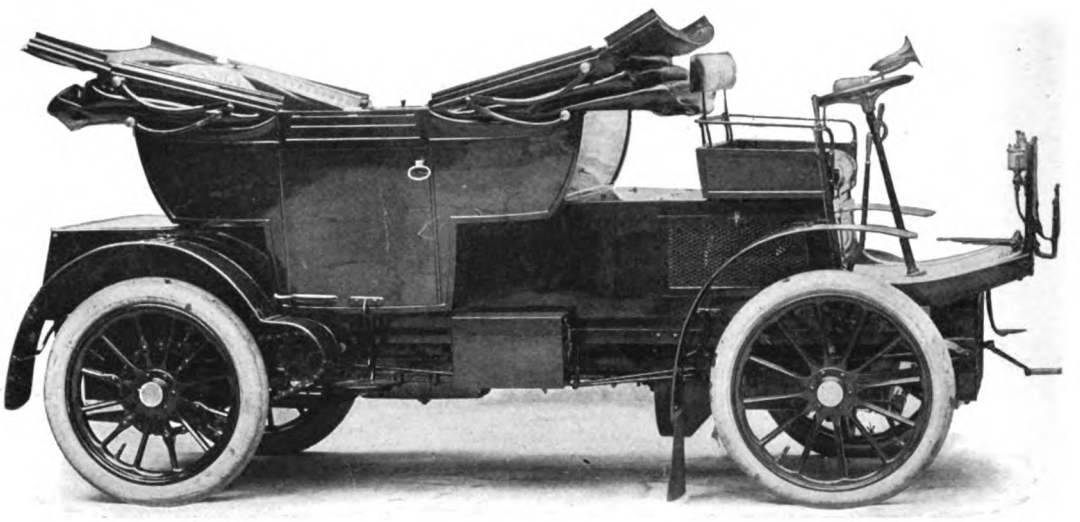
Are you going to extend your automobiling to water as well as on land? We are ready to deliver.

Smith & Mabley

Members A. L. A. M.

513, 515, 517, 519 Seventh Ave., N. Y.

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25 H. P., C. G. V.

Landau by Mühlbacher, Paris

Automobiles Charron Girardot & Voigt

Factory
Puteaux, France

FIRST GOLD MEDAL
Highest Award
3 Consecutive Years
1902-1903-1904
Paris Salon

Paris Salesroom
45 Av. de la Grande Armée

C. G. V.

It is urged that orders for Landaulet and Limousine Side Entrance Cars be given at the earliest possible date in order to insure early Fall delivery

Demonstration will be given by Appointment

Em. Voigt
Sole Importer

Office
Depot for Repairs and Spare Parts
244 West 69th St., New York

Telephone 2980, Columbus

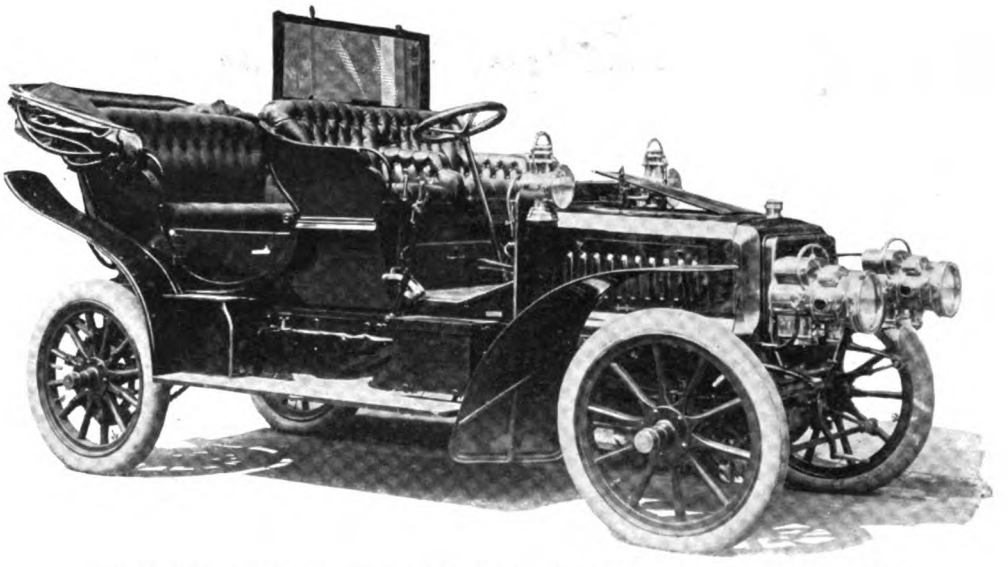
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PANHARD & LEVASSOR

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18 H. P. Panhard & Levassor Cabriolet with Sliding glass and Victoria top.

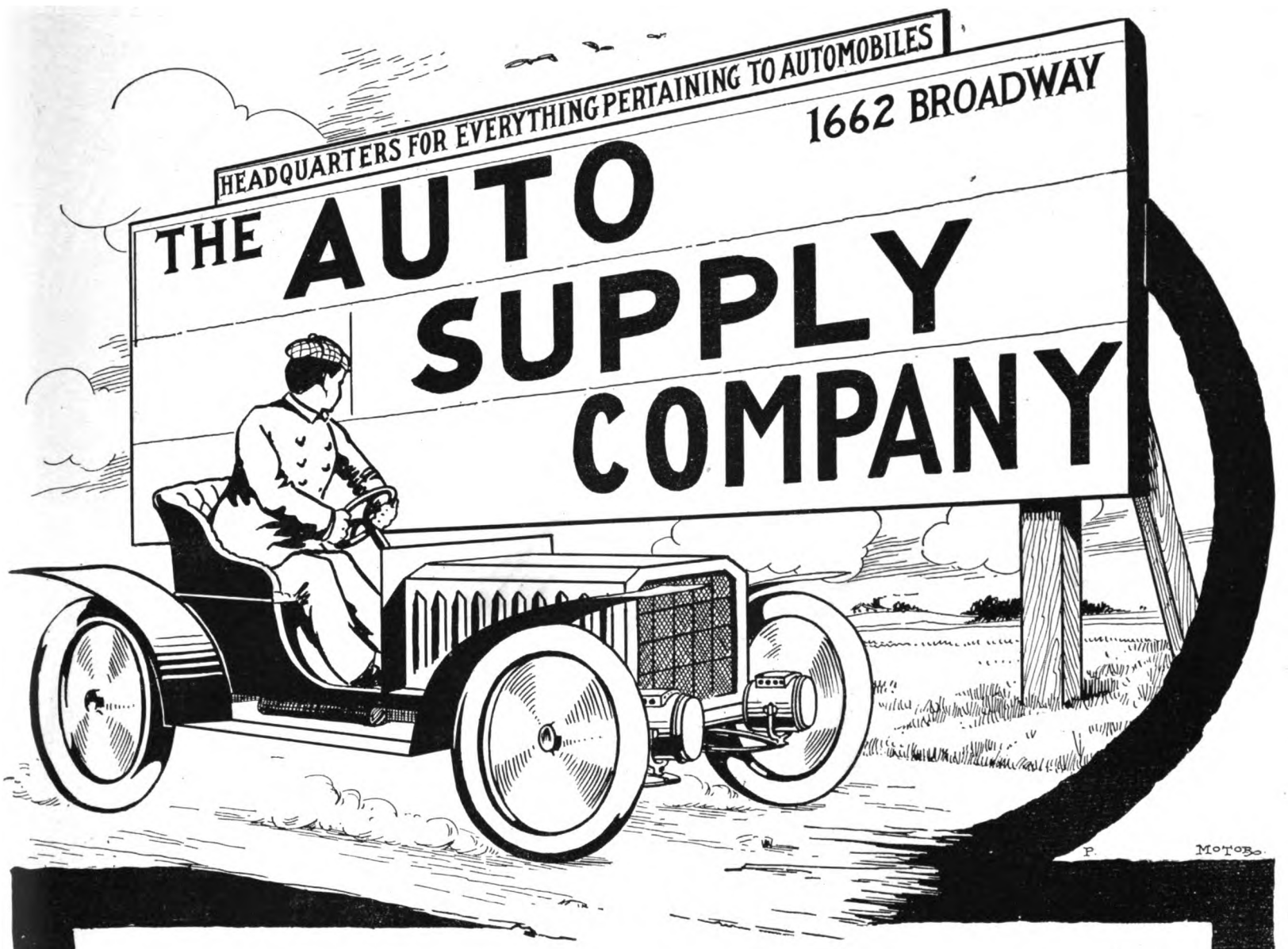
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35% FROM THE REGULAR LIST, we don't import from Hoboken, export to Brooklyn, and manufacture on the tenth floor in the basement. No 10,000 ton catalogue, no gold bricks, no junk, no trading stamps, not even $28.00 searchlights for $3.96.

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Fifth Annual Catalogue

Same contains numerous articles of interest to all users of automobiles and you will find

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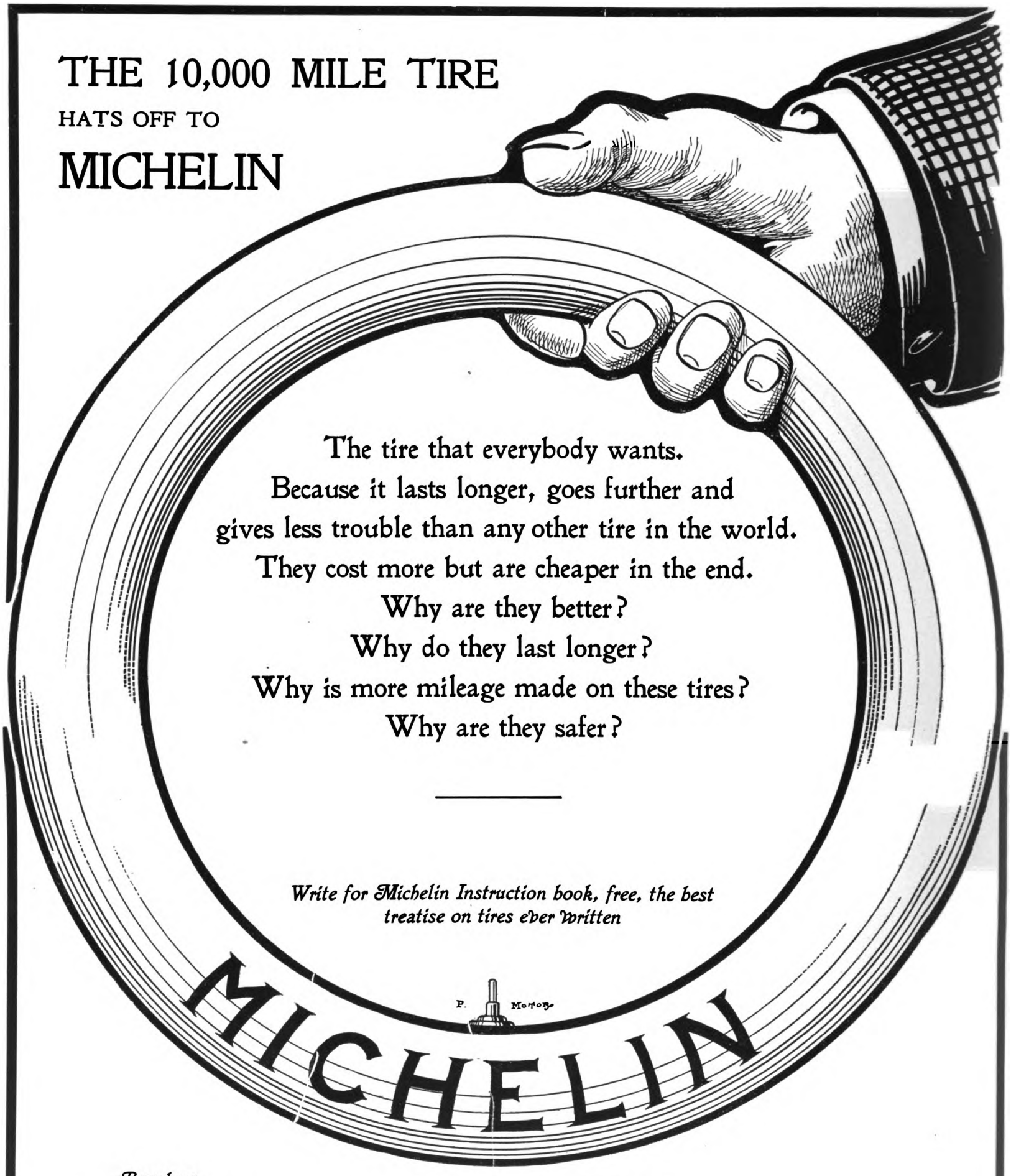
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The tire that everybody wants.
Because it lasts longer, goes further and
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They cost more but are cheaper in the end.
Why are they better?
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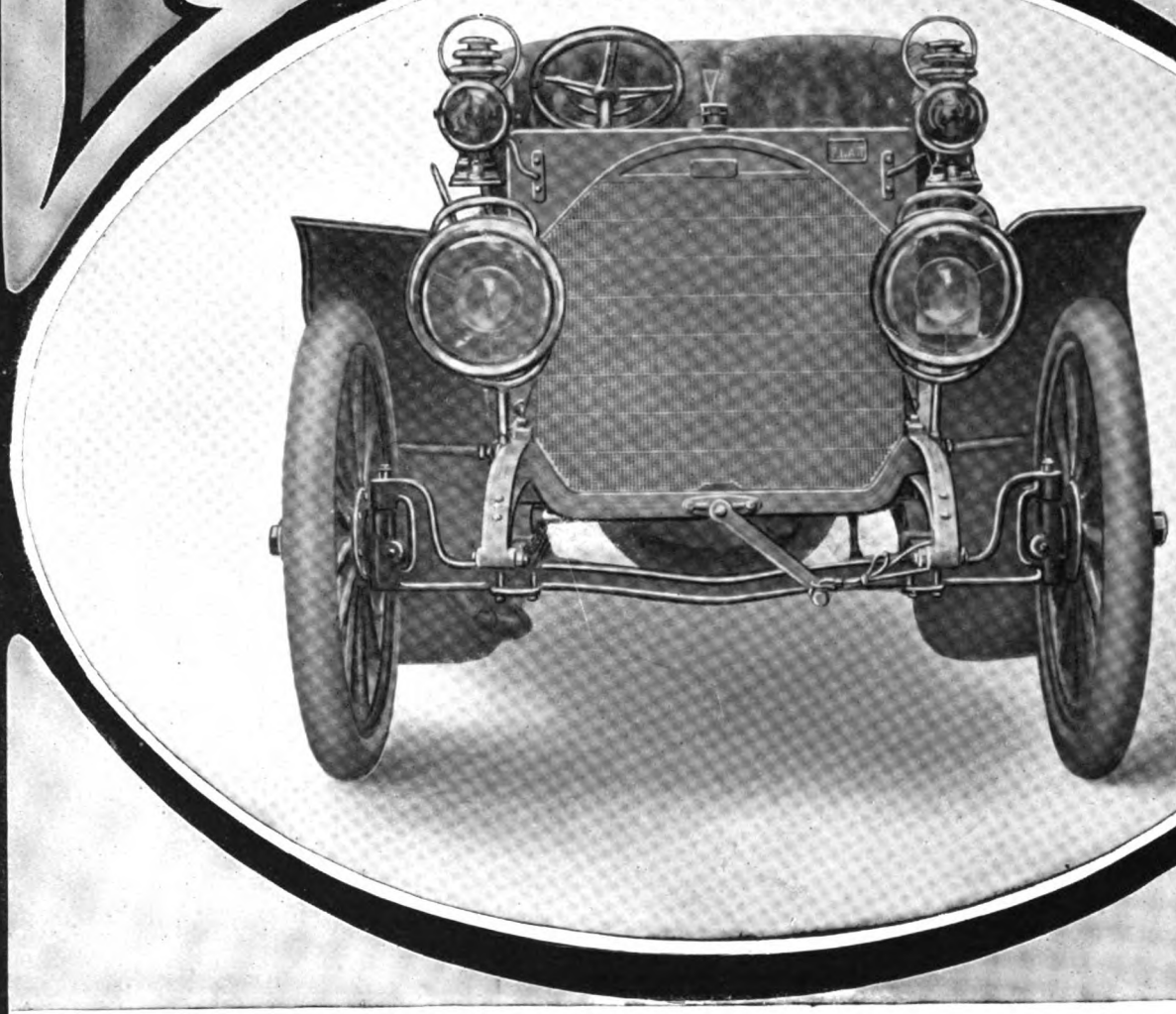
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can now be seen at our garage

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They Never Last Long — Here is One of Them

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The price of the magazine is $3.00 a year and the same policy purchased through an agent would cost you $12.00—a total cost for the magazine and insurance of $15.00

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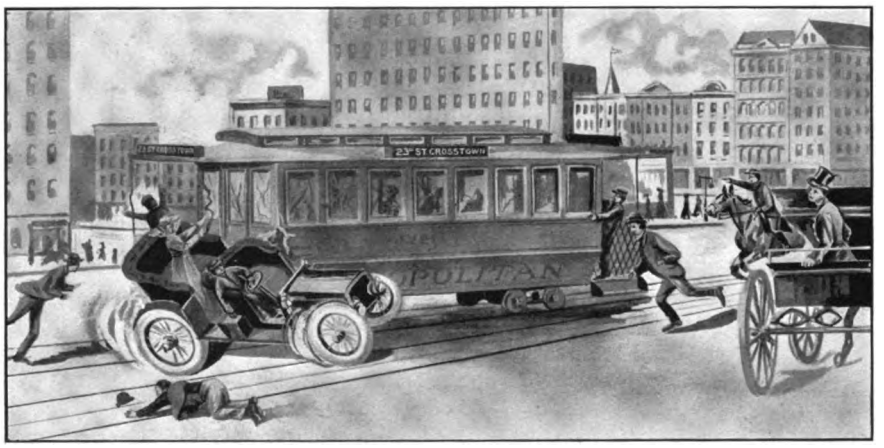
A Special Limited Offer to Owners and Users of Automobiles

—BY THE—

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Incorporated. Capital $50,000.00

The insurance is issued by the New Amsterdam Casualty Company, of New York, which company has assets of nearly one million dollars, and a surplus to policy-holders of over four hundred thousand dollars. Losses paid by the company to January 1, 1905, $932,351.48. The responsibility of the company is absolute.



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How is it Possible to Offer this Insurance for Less than One-Half the Usual Cost?

Because the actuaries of the New Amsterdam Casualty Company have computed the risk involved in insuring a large number of the very best and most carefully selected policy holders, and after eliminating all agents' commissions and a large proportion of the fixed charges of ordinary business, **the company gives us a rate of premium on one thousand policies for spot cash that is absolutely at bedrock and unprecedented in the history of Accident Insurance.**

A Very Broad Policy

This Accident Insurance applies to *any person of either sex over 16 and under 65 years of age* (hired chauffeurs excepted), who is in sound condition mentally and physically. Under the terms of the policy, you or your family will not only be fully insured against all risks incident to riding in an automobile, but also from riding in a horse conveyance, a subway, surface or elevated railroad car, omnibus, ferry, steamboat, cab, passenger elevator or other public conveyance; from getting on or off all kinds of public conveyances provided by a common carrier for passenger service; from being knocked down, struck, run over or otherwise injured on the public highways by conveyances of all descriptions; from runaways, explosions, burning buildings or burglars.

Sign and Mail at Once the Order in the Corner

The magazine will be mailed direct from the publishers for a year, postpaid, to any address you direct. This offer applies to either a new subscription for *Motor*, or will extend a present subscription for another year after its expiration. The insurance will be in force as soon as you receive and sign the policy.

A Large Demand, But a Small Supply

This announcement will attract and interest the more than one hundred thousand monthly readers of this magazine, but we have only one thousand policies for sale, and this offer will not be repeated.

First come, first served. Take out a policy for yourself and for each member of your family who is eligible, before it is too late.

Remit only $5.00 for each $3,000.00 policy without the magazine. Only $3,000.00 insurance will be issued to any one person.

READERS' CO-OPERATIVE CO.

95 FIFTH AVENUE, NEW YORK

ORDER BLANK

Readers' Co-operative Co., 95 Fifth Ave., New York.

I enclose $7.50 for which enter my order for one year's subsciption for *Motor*, and mail me the $3,000.00 Accident Insurance Policy issued by the New Amsterdam Casualty Company of New York, and described in your offer in the June number of *Motor*.

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Address.....

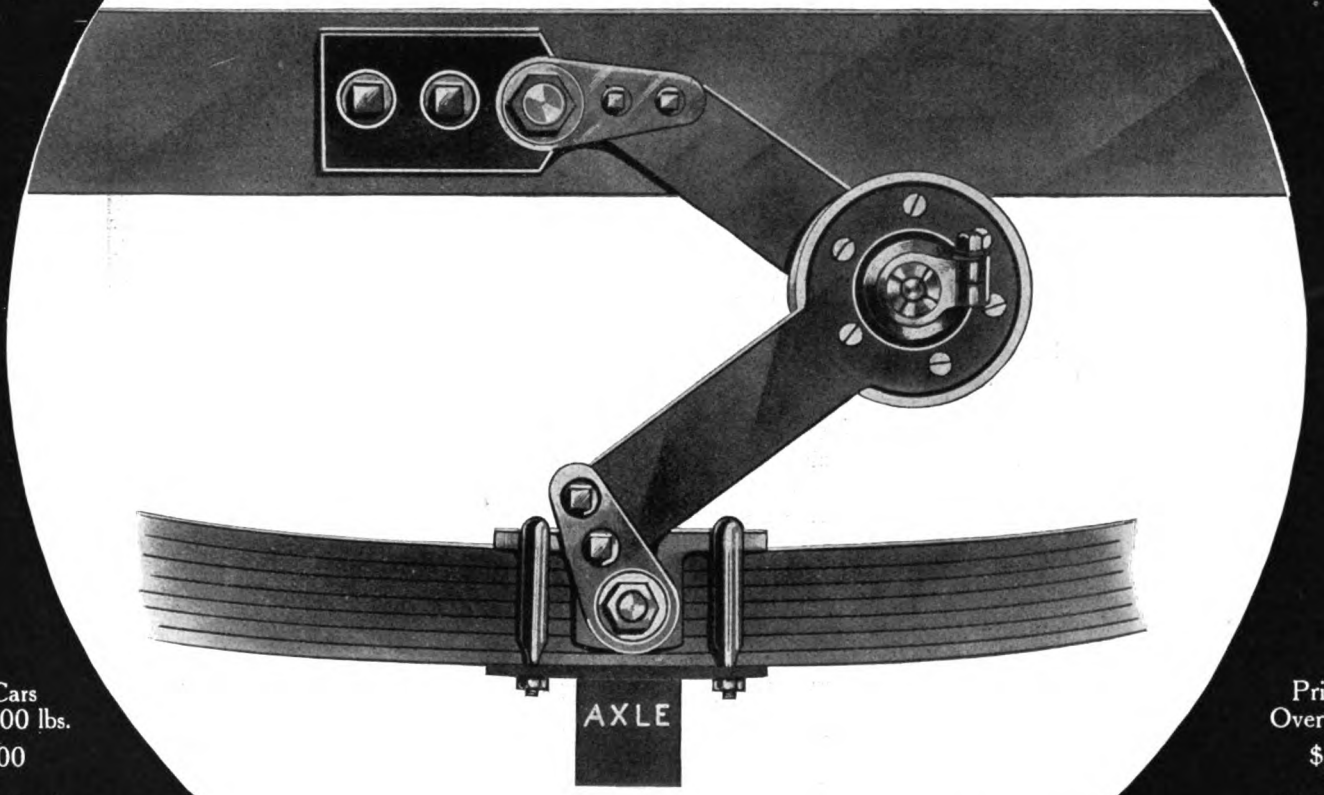
Note.—If additional policies are wanted for members of your family, enclose the order on a separate sheet.

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UNIVERSALLY CONCEDED TO HAVE WON THE GORDON BENNETT CUP IN 1904

OVER 5,000 SETS ARE NOW IN USE IN FRANCE ALONE



Price for Cars Under 1,500 lbs.
$40.00
(4 Suspensions)
"Remarkable and perfect suspension."
—Mercedes Co.

Price for Cars Over 1,500 lbs.
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"Diminishes in a marvellous degree the wear and tear on the tires."—Michelin.

Insist that your new car be equipped with the

HARTFORD SHOCK ABSORBER

Doubles the life of tires. Increases the speed.
Prevents lost traction. Absolutely prevents breaking of springs.
Makes cobblestones and rough roads seem like asphalt.
Enables cars to run over rough roads at highest speed that could not be negotiated at all without it.
Indorsed by most prominent automobile engineers the world over.

Adopted by
Geo. N. Pierce Co. (awarded Grand Prize at St. Louis).
F. I. A. T. (highest long distance speed ever attained by any vehicle).
Richard-Brasier (winner Gordon Bennett Cup, 1904).
Peugeot (decorated at Paris Salon by Pres. Loubet).
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For Sale by all dealers.

Send for Further Information and Prices to Dept. "M." Prompt Deliveries.

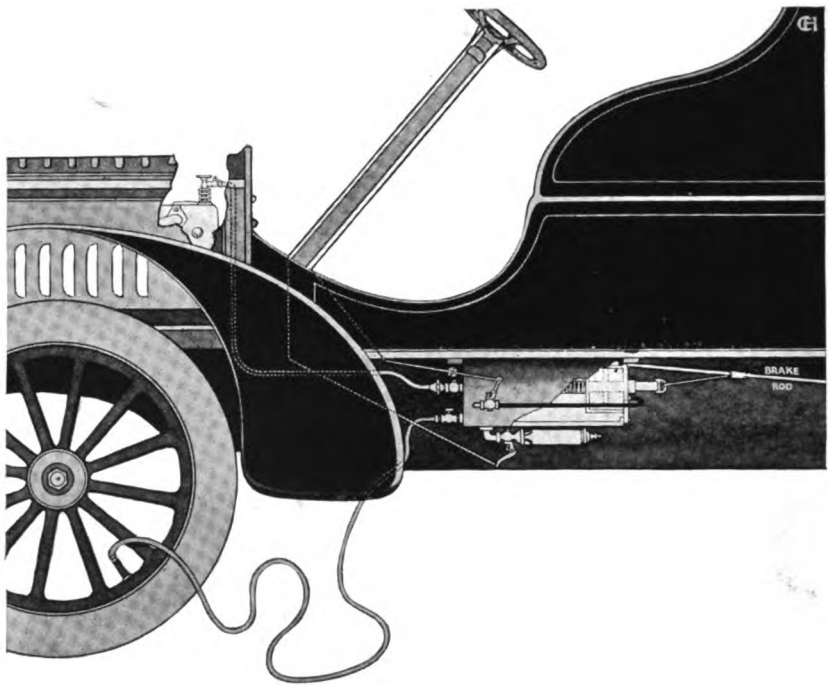
HARTFORD SUSPENSION CO., 67 VESTRY STREET, New York City.

E. V. HARTFORD. President

P. MOTOR.

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Power Brake for Automobiles



This diagram shows the working of both the brake and the tire filler.

For two years we have been developing a brake for automobiles to be operated by power from the engine, and we have now brought to perfection an effective power brake, the first ever offered.

This spent-gas brake will mean as much in the operation of automobiles as the Westinghouse Air Brake has meant to railroad practice.

A power brake operated by spent gas.

Heretofore the only method of operating a brake has been by the foot or hand power, and besides being a tiresome part of automobiling, has been an unscientific, inefficient makeshift.

When your car is equipped with the Watres Spent Gas Brake the engine will do all the work of motoring.

The engine has always had the power. It has remained for the Watres System to utilize the engine for all the work of running the car.

How It Works

A quarter-inch connection is made to the cylinder of the engine by attaching to the compression vent, if there is one, or direct to the explosion chamber of the engine, if there is no vent.

Takes no power from the running of the engine.

This quarter-inch pipe is opened just one sixty-fourth of an inch. This minute opening permits the passage of an infinitesimal amount of spent gas, *i. e.*, gas that has been exploded. This spent gas is stored in a tank attached to the floor of the car, the size of the tank being fifteen inches long and six inches in diameter, and this tank contains all there is of the brake apparatus.

As shown in the drawing, the small brake cylinder is located in one end of the tank, and in this cylinder the brake piston travels.

This piston has a travel of three and one-half inches, this travel being regulated by a valve under the control of the driver. A cord is attached to the steering wheel and a touch on this cord applies the brake—just as slowly—just as quickly—as desired.

We have tested these brakes on big touring cars and on little cylinder engine runabouts, and however small the engine, its running is not interfered with; and however heavy the car, it is every second under perfect control, to be slowed down or instantly stopped by a turn of the wrist.

It removes the only hard work of running a car.

The use of this power brake is for constant service. It is not limited to emergency or occasional use. It is for every day and all day, and it adds immeasurably to the pleasure of running the car if you drive the car yourself, and it adds immeasurably to your safety if your car is driven by a chauffeur.

The Watres Brake is connected by a flexible wire rope to the brake rod already on the car. It does not interfere with the use of the regular brake or of the emergency brake. They can be used just as at present, but when you have once driven your car with the power brake, you will not again be satisfied with a brake actuated by main strength.

Power Signal

The same power blows a strong whistle.

Attached to the same cylinder that operates the brake is a 1½-inch chime whistle. This whistle makes a road-clearing noise, and is in itself a most desirable attachment for a car. A separate cord from the whistle valve rests on the steering wheel, so that with both hands grasping the steering wheel it is unnecessary to remove the hands—either to blow a loud, long blast from the whistle or to slow down or instantly stop the car. A turn of the wrist does it all.

Power Tire Filler

It will also fill the tires, if you like.

Through an attachment on the same tank, while the car is at rest, by runni[illegible] engine slowly the tires can be filled to any pressure desired, the gauge always indicating the amount of pressure.

Price

The price of the Watres Brake complete, ready to attach to any car, big or little, is $50, and this price also includes the power whistle and the power tire filler.

It can be attached after the car has been built.

The work of attaching to the car is very simple, and can be done in half an hour.

It is not at all necessary that the Watres Brake should be attached when the car is built. It can be attached at any time and to any car, and we guarantee that it will be efficient and that it will completely satisfy you, by agreeing to ship the outfit on your order with the understanding that you may attach it to your car and give it just as hard a test as you can for a month, and then if it is not all that was expected and a good deal more, send it back and we'll refund your money.

So, if you are interested in our brake and would like to try it, we'll take all the risk.

Our factory is already pretty well crowded, so we would be glad to have your order as soon as possible, or to send you a booklet if there is further information you want to have before ordering.

Gas Engine Whistle Company

1131 Broadway, New York

We also build a power whistle for motor boats. Special booklet on request.

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MOST DURABLE TIRES

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3244 Beacon St., Sheridan Park
Hours: Before 9 a. m.; 12:30 to 2 p. m.; after 6 p. m.
Telephone Lakeview 9

Office
100 State Street
Hours: 10 to 12
Telephone Central 3652

Chicago, April 25, 1905.

G & J TIRE CO., Indianapolis, Ind.

Dear Sirs:—

I have run an 1800 lb. machine fitted with 3½x32 G & J Tires, 18,000 miles.

My former experience with pneumatics had been so expensive that I was thoroughly converted to the solid tire, but after being persuaded to give your tires a trial I took altogether a different view of the matter.

I am more than pleased with the G & J, as I believe they come as near to perfection as is possible. I am no longer an advocate of solid tires.

Respectfully, H. M. GOODSMITH.

AND THE EASIEST TIRES TO HANDLE

No Clamps used with G & J Tires

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247 Jefferson Avenue

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CLEVELAND
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QUEEN



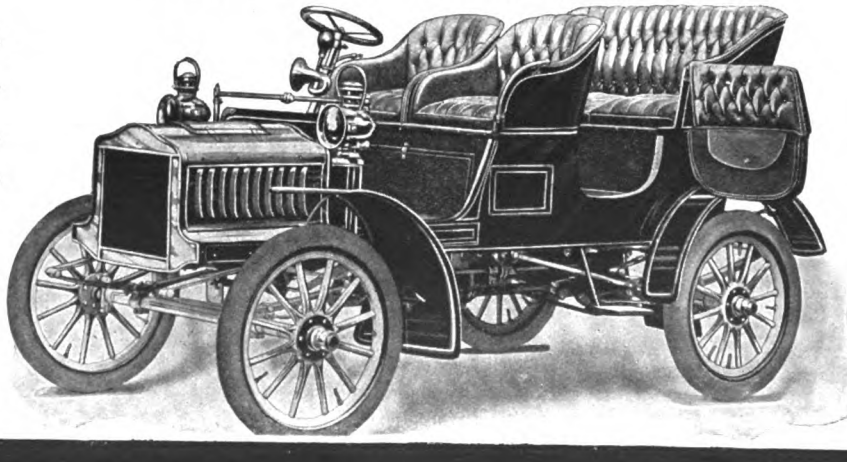
MODEL E, $1,000.00

18 Horse Power. Two opposed cylinders. 1,600 lbs. Equipped with two lamps and horn.

The C. H. BLOMSTROM MOTOR CO.,

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Agencies in all the principal cities



30 to 40 miles per hour. Seats five people. Double side door. Finished in royal blue with cream-colored gear

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BOSTON AGENT, F.E. Wing Motor Car Co., 66 Stanhope Street

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DENVER AGENT, Mathewson Automobile Co., 1420-22 Court Place

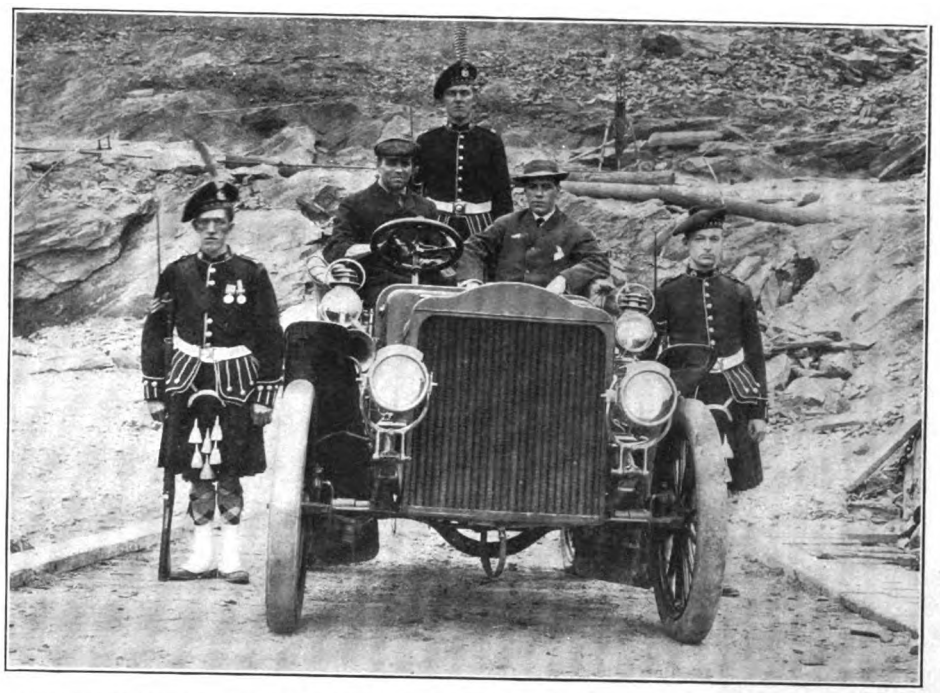
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We accept the advertisements of only the best concerns

THE Tourist's Guide

WEATHER FORECAST
Fine weather for touring during June

Vol. 1. No. 2 — June, 1905 — Free With Each Copy of MOTOR



AT THE WHEEL IS J. W. CATRON, WHO TOURED FROM NEW YORK TO CHICAGO IN HIS WHITE CAR AFTER BUT TEN DAYS' EXPERIENCE WITH THE MACHINE

WHITE WINS STOCK CAR RACE

We clip the following from the account published by the St. Louis "Globe-Democrat" of the race meet held in that city on May 7th:

"One of the most exciting races of the day was a match between a White, Packard, Pope-Toledo and St. Louis four-cylinder stock cars. Harry Turner was driving the Pope-Toledo and his machine shot out in front and opened up a gap of at least 100 yards. Then Leathers, with his White steamer, got his machine working properly and he overhauled Turner in the back stretch on the second mile and won easily, Turner pulling up and refusing to finish. Carr, driving the Packard was second."

LITERARY NOTES

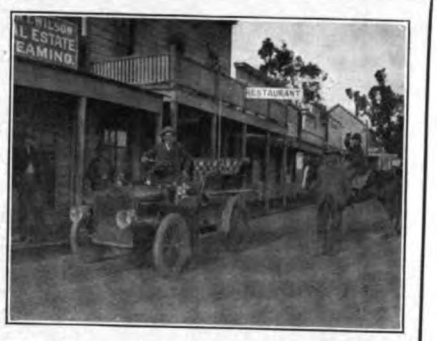
White Bulletin No. 9 is now ready for distribution. It contains at least two articles of more than ordinary interest. John S. Rowe writes of his remarkable trip from Savannah, Ga., to Buffalo, N. Y., accompanied only by his wife, his two young sons and their governess.

J. W. Catron tells of the impromptu trip he made from New York to Chicago as the result of a wager made with some friends who were so reckless as to bet against his chances of doing so in a certain time.

The Bulletin contains a number of notable illustrations, including several of the trip of H. D. Ryus, from Los Angeles to San Diego, during the recent floods.

CONCERNING WHITE VALUE

The question is frequently asked, "How is it that $2,500, the Cleveland price of the White car, represents so much value?" We have been investigating this matter and find that the principal reason that the purchaser of a White receives the maximum value for each dollar expended is because of the high efficiency of the White Company's manufacturing plant—the result of long experience, of careful designing, of large output and of perfected organization. Finally, the White Company have proceeded on the common-sense plan of giving to the purchaser the benefit of their low shop costs.



THE INCOMPARABLE

WHITE

THE CAR FOR SERVICE

Write to us to-day
for Bulletin No. 9

White Sewing Machine Company
CLEVELAND, O.

B. & J.



THE "WHITE SQUADRON" IN THE NEW YORK AUTOMOBILE PARADE, APRIL 29th

There were more White Cars in line than there were of any other three makes combined

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LEARN

AUTOMOBILE OPERATION AND ENGINEERING

There are only two ways of learning anything. One is slowly and tediously to gain the experience yourself; the other, and better way, is to profit by the experience of others.

We offer you the long, hard-learned, thorough experience of many experts in Automobile Operation and Engineering, but we offer it in such form that to teach it to you will take only a few minutes each day—the few minutes that you usually waste.

We are the only school that provides complete and practical training by mail in operating, repairing, constructing, and designing every kind of motor vehicle and motor boat.

Our instruction has been prepared and is conducted by well-known men of long experience and proved ability both in the motor-vehicle field and in correspondence-education. It is strongly endorsed by prominent manufacturers, club and association officials, racing men, and others of the highest standing in the automobile industry. It is not offered as a substitute for practical experience, but is intended to *repare you* for and *help you* in such experience.

We provide special courses for owners, shop and factory employees, chauffeurs, motor-boat users, and others.

Any one can afford our instruction and every one should afford it.

For further information, send us your name on the accompanying coupon. It will be a two-cent stamp well spent for interesting and convincing literature.

The Correspondence School of Automobile Engineering,
Akron, Ohio.

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Please send to my address by return mail, a free circular, giving details and prices of your correspondence courses.

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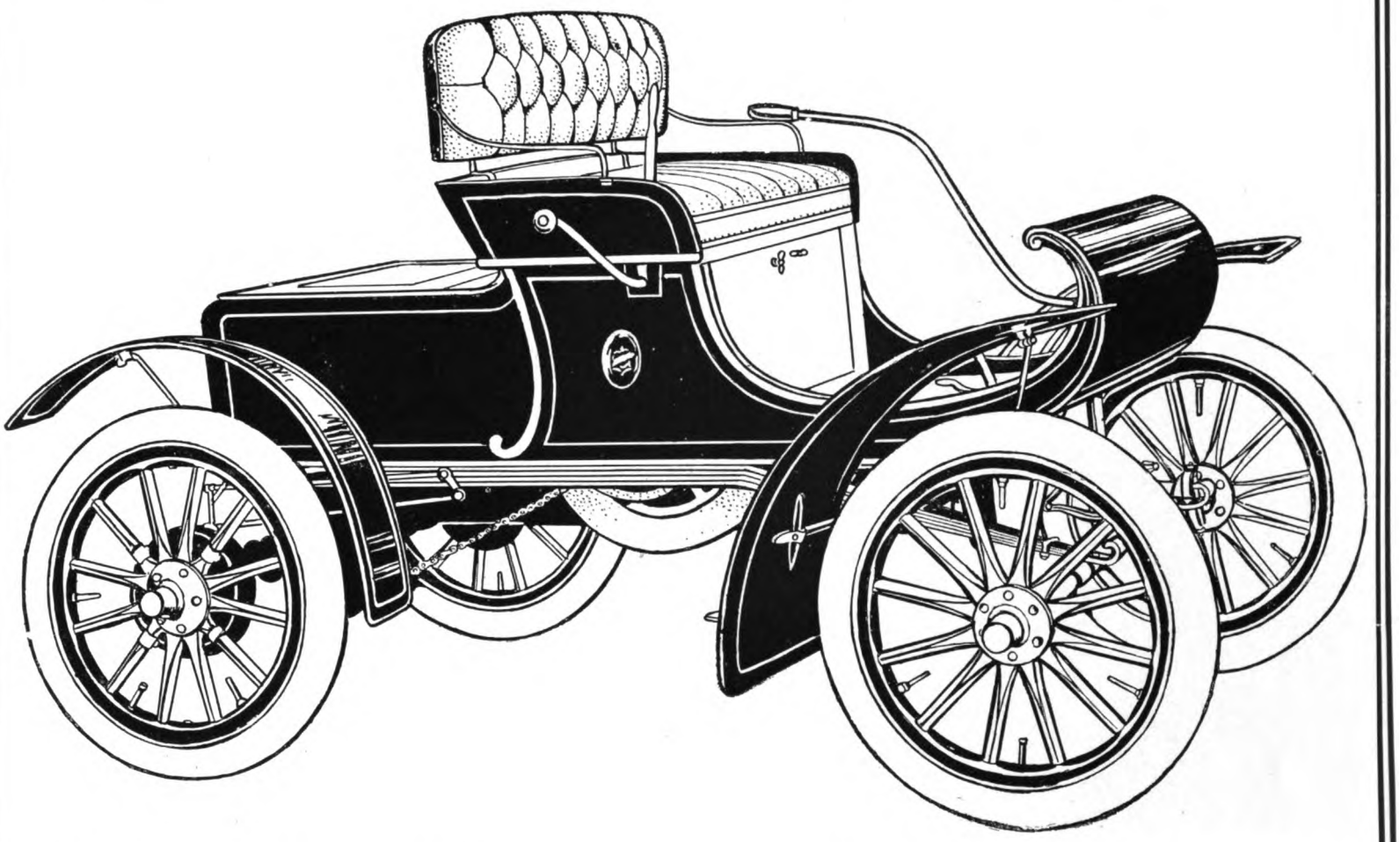
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Oldsmobile



Standard Runabout, Price $650

A race across the American continent, a distance of over 3,000 miles, can hardly be called a pleasure jaunt. Such a contest calls for extraordinary nerve and endurance of both driver and machine.

In 1903 the Oldsmobile Standard Runabout demonstrated that it possessed every requirement for such an undertaking.

Today, embodying, as it does, the best and most advanced principles of automobile construction, it is the natural selection to make the great run of 1905 from New York to the Lewis and Clark Exposition at Portland, Ore.

It has never been excelled for simple and reliable construction.

Its control is instant.

It has an insatiable capacity for hills and bad roads.

Its 7 H. P. motor gives it all the speed demanded and abundant power. Its carbureter permits easy starting and economizes fuel.

It has any number of other points of superiority.

Send for Catalog 90.

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Detroit, U. S. A.

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AUTOMOBILE TIRES

The toughest tread, the strongest fabric and the closest union of parts. The most powerfully constructed tire in the world.



Built as a unit, wears as a unit, no weak spots.

Costs less (mileage considered) than any other tire.

The Goodrich Automobile Tire

is not all at once exploited as a splendid product. It is the *Original* American Clincher, and from the beginning was a good tire and acknowledged as such; experience taught us how to make it a better tire and to-day thousands of satisfied users declare it

THE BEST TIRE

We have made improvements—other manufacturers are making experimental changes

GOODRICH TIRES

(Integral Construction)

once attached to your car become almost an inseparable, and, what is more to the purpose, an uneventful part of the equipment. Rarely need detaching because hard to puncture and often outwearing the machine itself.

Equip your car with the most powerfully constructed tires in the world—Goodrich Tires

The B. F. Goodrich Co., AKRON, O.
DEPT. 18P

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DENVER: 1444 Curtis St.
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MOTOR'S INFORMATION BUREAU

There are two sections to every magazine—the editorial and the advertising. Neither is more important than the other. The reader buys a magazine for the interest which the editorial section has for him, and he expects the advertising section to be an *information bureau* of his needs.

The advertising pages of this issue of MOTOR should be as carefully read as the text pages, because they are its readers' *information bureau*. If you wish to buy a motor-car, you will find the standard makes advertised in MOTOR. If you wish tires, lamps, motor-car accessories, etc., you will find only the standard makes of anything represented in MOTOR's advertising pages.

Never hesitate to write to advertisers for more complete information than the advertisements contain. You incur no obligation, if you do. And when you do, kindly mention MOTOR.

For information about anything not in MOTOR, write us and we will see that you are informed.

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Motor-car design has reached a point where it is no longer difficult to obtain good, serviceable second-hand cars. There are a great many excellent values which fail to get a market because the buyer lacks the time to investigate or the skill to select carefully.

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Address_____

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ROCHET Schneider automobiles. Sole American agents. Auto Import Company, 1786 Broadway, New York City.

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FOR reliable automobiles at bargain prices, both French and American makes, see Broadway Automobile Exchange, largest and best-equipped establishment in this city. 'Phone, 6363 and 6364 38th St.

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WE name below a FEW of OUR SPECIAL BARGAINS of NEW, SLIGHTLY USED and SECOND-HAND automobiles on hand. A complete list sent upon request. **REMEMBER WE** are the **LARGEST DEALERS** of **NEW** and **SECOND-HAND** automobiles *in the United States.*

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No. 246. WINTON TOURING CAR, $600.00.
No. 318. LOCOMOBILE STEAMER, $150.00.
No. 515. HAYNES-APPERSON SURREY, $450.00.
No. 320. MOBILE STEAMER, $125.00.
No. 513. 4-cylinder PREMIER; 19-H. P.; $850.00.
No. 303. WINTON RUNABOUT, $150.00.
No. 321. OLDSMOBILE, $300.00.

This is only a FEW of OUR immense stock that we have on hand, and if you are interested in any particular machine we would advise that you telegraph us the number and we will hold it awaiting further correspondence.

Times Square Automobile Co.

164 West 46th Street, New York

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CHOICE selection of several second-hand gasolene runabouts and touring cars now on hand. All in A1 condition. Franklin and Olds repairs a specialty. Reasonable rates for storage. Curtis Auto Co., 449 Madison St., Brooklyn, N. Y.

CARS stored and repaired at lowest reasonable prices. Terms: By the job or by the hour. All work guaranteed. Auto Transportation Co., 353 West 39th St., New York City.

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SECOND-HAND cars registered free for patrons and friends. Registration private when desired. Consult our list if you wish to sell or purchase. Storage, repairs, supplies. Grant Square Garage, 1378-82 Bedford Ave., Brooklyn, N. Y.

LARGEST uptown garage. Careful attention, prompt service, no overcharges. Storage rates the lowest consistent with proper care. All repair work guaranteed. We respectfully solicit your patronage. Autos stored, repaired, rented, bought, sold, exchanged. Unequalled facilities. Empire Auto-Car Co., 266-268 West 135th St., New York. 'Phone, 2880 Morningside.

WE guarantee to teach you to run and repair an automobile; $25 a course; easy payments. Great demand for chauffeurs this season. The automobile is the coming thing; manufacturers can't supply the demand. Automobile Transportation School, 353 West 39th St., New York City.

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MOTOR BUREAU

A Practical Plan for the Sale and Purchase of Second-Hand Cars

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STORAGE; repairs; cars for sale and rent. West End Automobile Palace, 202-212 West 89th St., New York City.

THE Marmon Motor Car. Theo. E. Schultz, Broadway and 110th St., New York City.

EMISON & TURNER, 222 Halsey St., Newark, N. J., offer several demonstrating cars, slightly used; pleasure and commercial uses; low figure. Our runabouts are high-powered cars. Sales Department has full line new cars.

TIMKEN ROLLER BEARING AXLE COMPANY.—Roller bearings and axles for automobiles. Attention of garages and auto repair stations, as well as manufacturers, is especially directed to this office. 219 West 46th St., New York City. 'Phone, 2043 38th St. (Branch of Canton, Ohio.)

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WANTED.—Experienced man to take charge of automobile parts department of a large company; about to make radiators, bonnets, wind shields, pressed steel frames, fenders, etc. References required. Good salary. Address The Kinsey Mfg. Co., Dayton, Ohio.

WANTED.—Experienced man as superintendent of a large automobile company. Good salary to the right man. Must have best of references. "Spark," care The Dayton Motor Car Co., Dayton, Ohio.

FOR AUTOMOBILE SKIN, use Miss Mills's Peach Bloom. Absolutely protective. Protects skin from wind, dust, sunburn and contact with raw air. Is cooling, healing, softening, antiseptic, astringent, and imparts a dainty finish and color to the face. Price, $1.00 a bottle. Postage or express, 12c. extra. Ithaca Toilet Co., Ithaca, N. Y.

WHITE STEAM TOURING CAR AGENCY.—Bronx agency for the Wayne touring car. New cars to show always on hand. Immediate deliveries guaranteed. Excellent storage facilities at lowest rates. Efficient, skilled mechanicians always in attendance, guaranteeing prompt and careful repairs. Tyrrell & Menair, 2862 Webster Ave., New York City.

FOR SALE.—Olds runabout and dos-a-dos seat, just overhauled and equipped with new tires, $350. R. M. Walker, Monroe City, Mo.

RENTING.—First-class touring cars rented by the day, week or month for city or country use. New Amsterdam Transportation Co., 152 West Fifty-sixth St., New York City. 'Phone 4066-Columbus.

FOR SALE.—All guaranteed in perfect condition: Four-cylinder Renault, 1904; 2-cylinder Renault, 1904; 4-cylinder Vinot; Pergot hansom; A1 14-H. P. Panhard; White Steamer, 1904; White Steamer, 1903; Haynes-Apperson touring car, 1904, with top and full equipment; Winton, 1904, with top; Yale, 1904; Thomas, 1903; Franklin runabouts; model A and B Cadillacs; Baker Electric; Columbia Electric; Ajax Electric. All these cars are bargains; most of them very slightly used; all are thoroughly tested and have our guarantee. Leavitt Motor Car Exchange, Inc., 54-56 West 43d St., New York, N. Y. 'Phones 6584 and 6585 38th St.

FOR SALE.—Voiture Legere Darracq, 1902, single cylinder; Ducellier lamps, Swivel searchlight, two Dietz oil lamps, rear Neverout lamp, horn, new Michelin tires, complete set tools, etc. Seats five; $800. Elwood W. Baker, 143 Liberty St., New York, N. Y.

FOR SALE.—1904 White Steamer; newly refinished; perfect order. Cost, with extras, $2,500. My price, $1,200. E. B. Case, Bristol, Conn.

FOR SALE.—1904 Locomobile; 4-cylinder gasolene touring car with top, glass front, baskets, etc. In perfect condition. Price reasonable to quick buyer. Ger. A. Brinkerhoff, 149 Broadway, New York City.

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AUTOMOBILES FOR RENT.—Cars to hire for any length of time. Special rates for trips. Cars of all kinds bought, sold and exchanged. First-class repairs guaranteed. Auto Garage Co., 701 Quincy St. (near Reid Ave.), Brooklyn, N. Y.

FOR SALE.—40-H. P. Winton; new tires; cost, new, $9,000. Will sacrifice for $1,500. Chas. Strathman, 175-179 East 120th St., New York, N. Y.

AUTOMOBILES FOR HIRE.—Cars to hire by the day, week or hour. Automobiles bought, sold, rented, repaired and exchanged. Storage and repairs a specialty. The Windsor Automobile Co., 115 West 37th St., New York, N. Y. 'Phones 6293 and 6294 38th St.

THE MANHATTAN BEACH AUTO STATION, Manhattan Beach Hotel, will open about June 1 with all facilities for maintaining all kinds of automobiles for the patrons of Manhattan Beach and Oriental hotels and outsiders. Automobiles to rent at all times. Open day and night. Agent for the Marion, 4-cylinder, air-cooled; the simplest and easiest car to maintain; will seat five; side entrance. Price $1,500 F. O. B. factory. Buy a Marion and get your money's worth. We are also agents for the National and Rambler. W. Barber, manager.

HISTORIC CLAREMONT. — America's famous roadhouse; open every day in the year. Riverside Drive, New York, N. Y. 'Phones 411 and 412 Morningside.

POPE-TOLEDO FOR SALE.—In perfect working condition; 1903 model; $750. Address Garage, 2 Jefferson Ave., Brooklyn, N. Y.

BARGAINS.—24-30-H. P. Darracq, perfect order; 30-35-H. P. Darracq, side entrance; run 800 miles; $4,900; cost originally $9,200; guaranteed perfect. Irving Auto Co., 128 East 19th St., New York, N. Y.

BATTERY WORK A SPECIALTY.—Charging, blacksmithing, brazing; all kinds of repair work. Autos stored. Gus Lind & Co., 231-233 East 47th St., New York, N. Y.

HUBER'S CASINO, Hotel, Pavilion and Café. Concert and refined vaudeville every evening; Saturday and Sunday afternoons. Restaurant à la carte. Game and shellfish in season. Full line foreign and domestic wines. Headquarters for motor touring parties. Auto station one block from door. G. H. Huber, proprietor; J. F. Schafhauser, manager. Jerome Ave. and 162d St., New York, N. Y. 'Phone 211 Melrose.

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HISTORIC CLAREMONT, America's famous roadhouse, Riverside Drive, New York, N. Y. 'Phones 411 and 412 Morningside. Open every day in the year.

STORAGE AND REPAIRS.—White Steamers, gasolene and electric automobiles for hire. Two A1 White Steamers and one 1904 nearly new Winton for sale. Bradley Johnson Automobile Co., 120 East 84th St., New York, N. Y.

FOR SALE.—Several Model A and B Cadillacs in A1 condition; from $450 to $700. Brooklyn agents for the Cadillac. Outing Automobile Co., Flatbush and Ocean Aves., Brooklyn, N. Y.

FOR SALE OR EXCHANGE.—One Michigan runabout and one White Stanhope Steamer. The former 1903 and the latter 1902 model. W. M. Applegate, 46 Broad St., Bethlehem, Pa.

FOR SALE.—Fast launch, 27 x 4-6. Oak keel and frames, cypress planking, mahogany decks, coaming and inside finish; 8-H. P., double-cylinder Toquet motor. For full particulars address G. A. Springstead, Geneva, N. Y.

GREAT BARGAIN.—New 5-H. P. Holley runabout vehicle motor; bronze pump, float feed carbureter, Kingston muffler, American coil, artillery wood wheels, Dunlop detachable tires, lamp and horn; great hill climber. Best offer over $300 takes it. Box 253, Rome, N. Y.

THEO. E. SCHULTZ GARAGE. — Storage; repairs; cars to rent. New and second-hand cars for sale. Broadway and 110th St., New York, N. Y. 'Phone 2686 Riverside.

WANTED.—Gasoline car, 1904 or 1905 model; 5-passenger, 12 to 24-H. P. Must be in good condition. I want to trade for above, 120 acres of land 2½ miles from Leadville, Col., in Arkansas river valley, 3-room frame house on same. Land is level, 60 acres pine timber, irrigation on next farm, valuable placer mine near by. A snap at $1,200. I will exchange for high-grade car of above description. Dudley Cochran, Hutchinson, Kan.

CORRE Car Agency, Imported, 20-H. P., direct drive, 4-cylinder, 104-inch wheelbase, side entrance, tonneau seating five. Valves mechanically operated. $3,500. Bird & Archer, 215 West 48th St., New York City.

COMMERCIAL AND INDUSTRIAL MOTOR-VEHICLE Storage and Repair Station. Only garage in New York making a specialty of handling commercial motor-vehicles. We design, build, and store all kinds of commercial motor-wagons; most expert mechanicians always in attendance. European car repairing a specialty. Motor-boats repaired and put in commission. All repair work guaranteed. Chelsea Auto Storage Co., 516-520 West 37th St. (near 10th Ave.), New York City. 'Phone, 2434 38th St.

FOR second-hand auto cars see A. G. Spaulding & Co., 31 West 42d St., New York City.

FOR SALE.—$3,000 Peerless touring car, canopy top, glass front, large horn, lamps, Jones speedometer, etc.; to settle estate. $850. Address Room 9, 215 West 125th St., New York City.

STORING, repairing, electric charging. Open day and night. Harlem Automobile Co., 159-163 West 127th St., New York City.

FOR SALE. — Second-hand, high-powered, 4-cylinder cars at very low prices. Following makes on hand: Queen, Mitchell, Royal Tourist, Knox runabout and Knox touring car. C. A. Duerr & Co., Broadway and 58th St., New York City.

CARS to rent by hour, day or week. Your choice 16-60 H. P. cars; also 60-H. P. Mors, very fine condition; has a record; for sale. No reasonable offer refused. Automobile Renting and Touring Car Co., 304 West 54th St., New York City.

FOR SALE.—A few 1904 Knox runabout and touring cars at bargain prices. Arthur R. Townsend, 1148 Bedford Ave., Brooklyn, N. Y. 'Phone, 2422 Bedford.

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FOR SALE.—New and second-hand Indian motor cycles, and other makes. Repairing motor cycle engines a specialty. 1080-82 Bedford Ave., Brooklyn, N. Y.

BROOKLYN agents for Marion, Rambler and National cars. Renting by the hour or day. Storage. Barber Automobile Garage, 58 Schermerhorn St., Brooklyn, N. Y.

DE DIETRICH AUTOMOBILES.—1905 models; 20, 30, 40, 80-H. P., side-entrance touring and racing cars; early deliveries guaranteed. Specially built for American roads; clearance, 12 inches. All parts of De Dietrich cars always in stock. We have the finest repair shop in New York City, and can quickly repair any De Dietrich car at lowest prices consistent with good work. De Dietrich American Branch, 215-217 West 48th St., New York, N. Y. 'Phones 974 and 975 38th.

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A MAN WITH A NEED

If you want to buy anything, if you want to sell anything, if you want a Chauffeur or Mecanicien, if you want anything in the world of motoring, you want

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In a few words, write your "want" and mail it to MOTOR with the price of the MOTOR MESSENGER at

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CARS FOR SALE

HAVE excellent bargains in South Dakota land to trade for automobiles. Here are some snaps. Write to-day for particulars. T. F. Vessey, Wessington Springs, South Dakota.

WANTED.—An automobile. I will trade a half acre of land for a suitable machine. Land is worth $500. Ideal spot, situated on a main road; trolley line and navigable river. Ten miles from Bridgeport, Conn. Address The Weavers, Shelton, Conn.

FOR SALE.—Launch 31 x 7 x 3 ft.; 9-H. P., 2-cylinder engine; fuel capacity, 90 gallons; plush cushions, awning, anchors, charts, compass, etc.; built 1904; trial given; price, $1,000. P. O. Box 23, South Freeport, Me.

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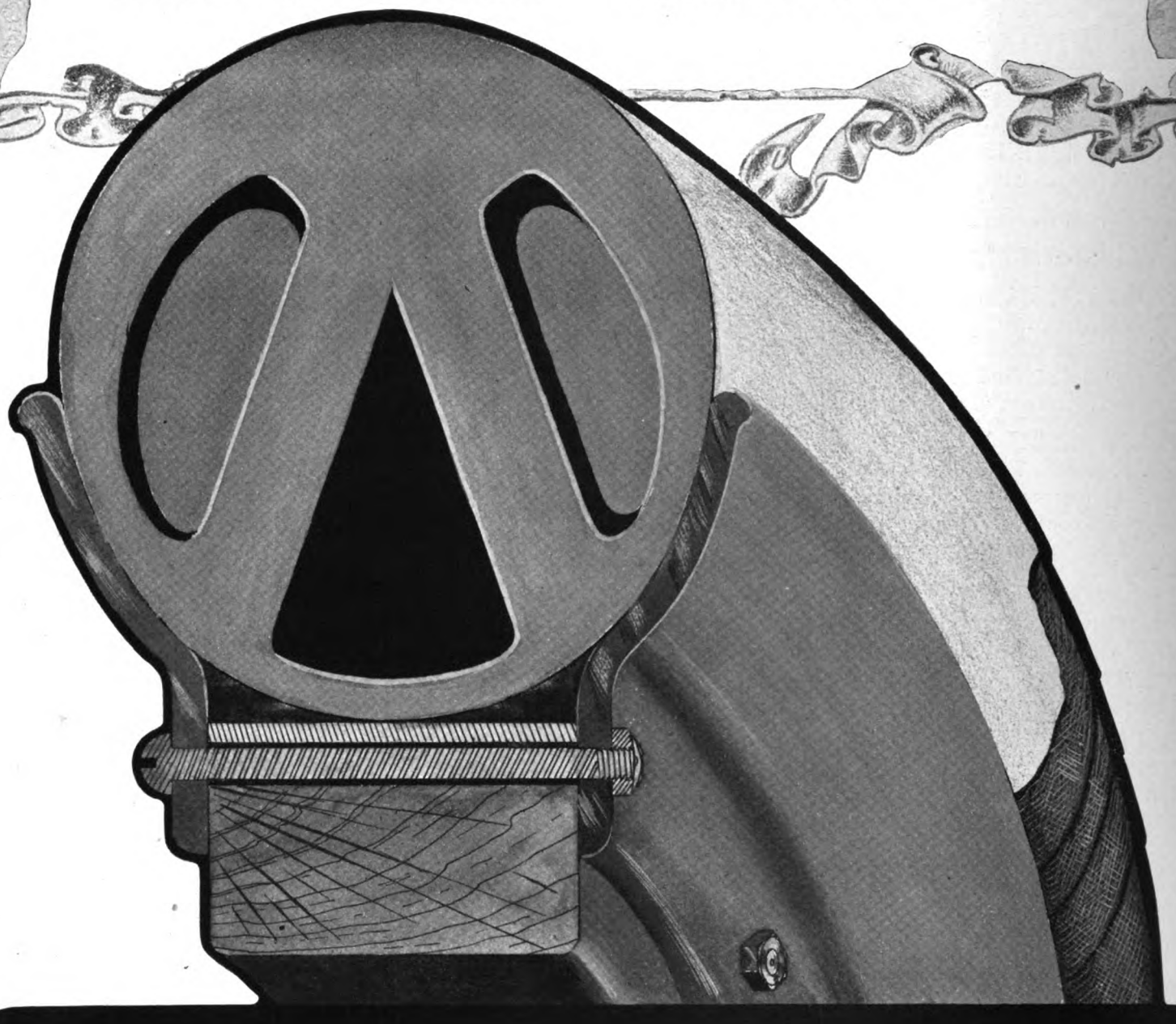
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Are there many rubber Tire manufacturers who will permit you to use their Tires for thirty days or any shorter length of time, and allow you to return them if you find they are not satisfactory? *WE WILL!*—Ask all the others and learn for yourself.

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The Milwaukee Rubber Works Company

***Manufacturers of* TIRES AND MECHANICAL RUBBER GOODS**

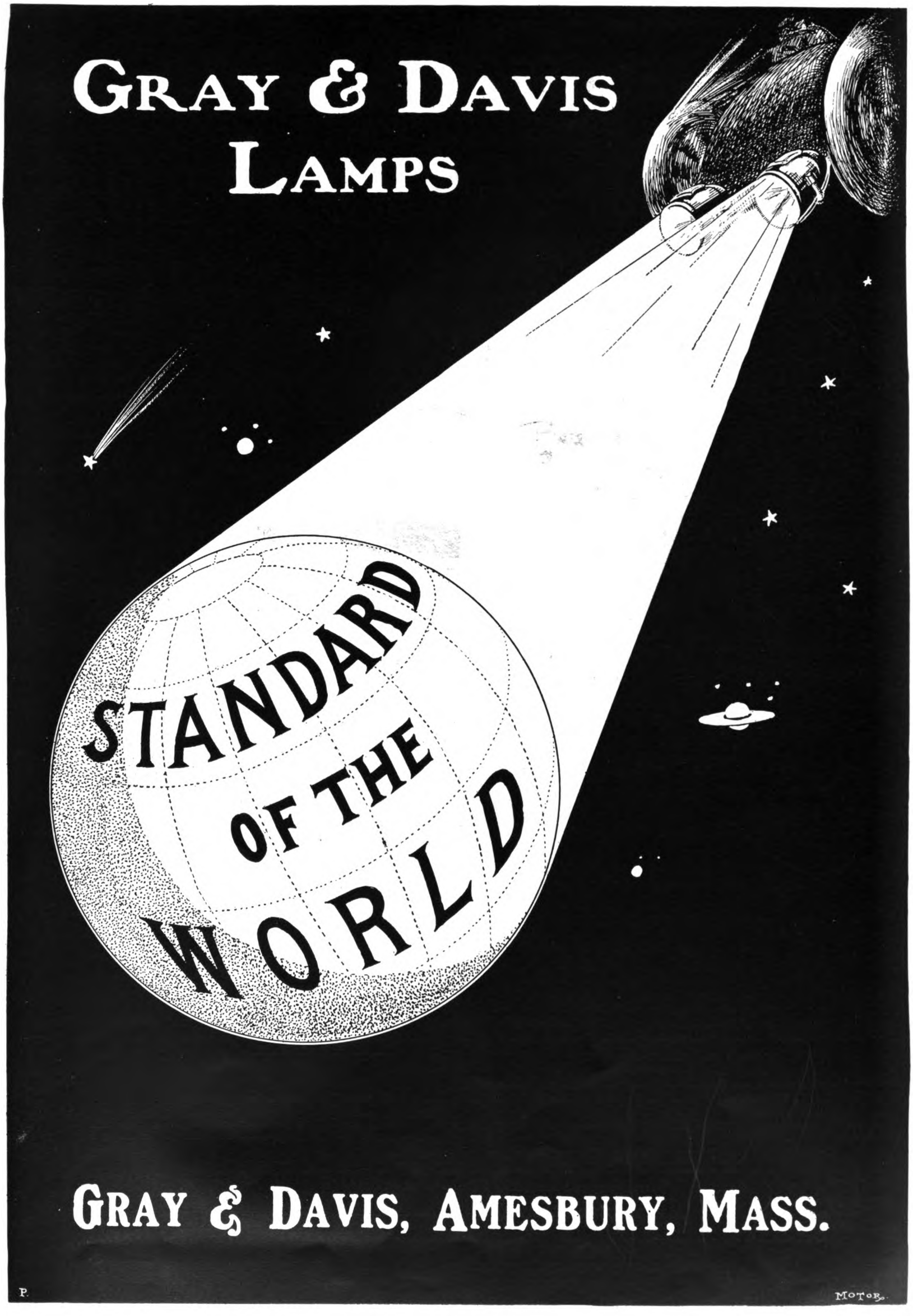
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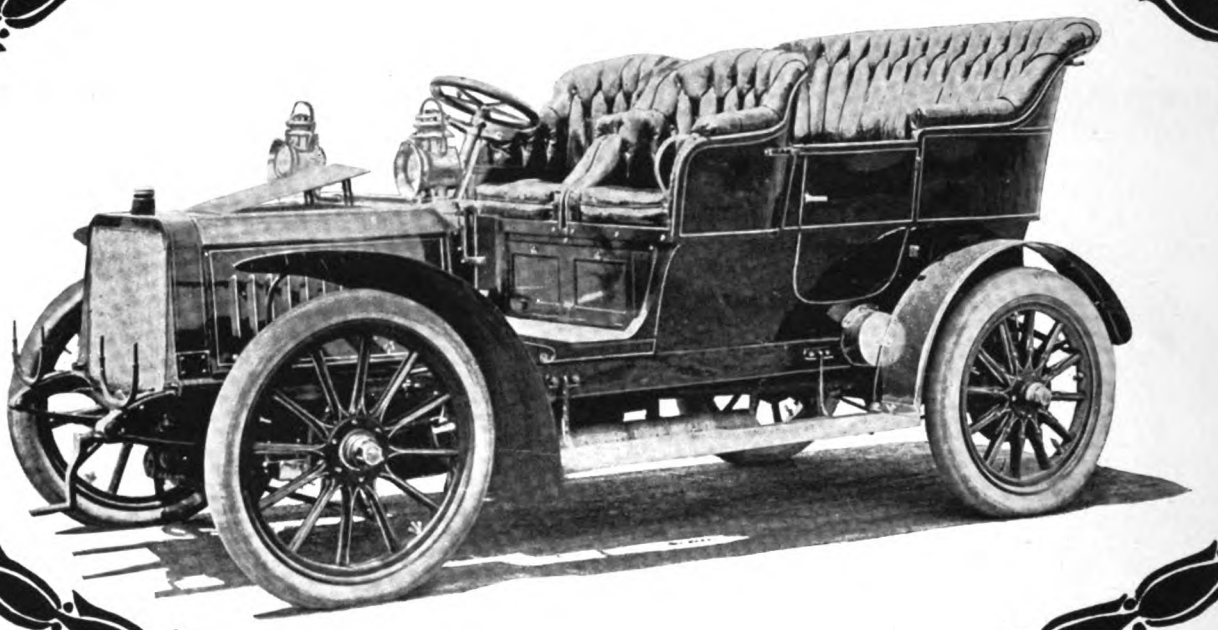


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P MOTOR.

The LARGEST MANUFACTURERS OF FRENCH CARS

Deeds not words sell the Darracq. Records and endurance tests are stronger arguments than the most glowing promises. The Darracq has earned the confidence of the public throughout every step of its history.

Abridged List of Our Successes in 1904

Arras Meet—Darracq cars first in all classes.
Ostende Meet—Standing mile: Baras first in 48 3-5. *World's Record.* Voiturettes: Edmond first. *World's Record.*
Ardennes Circuit—Voiturettes: De La Touloubre first.
Hill Climbing Contest at Mount Ventoux—Light cars: Hemery first. Voiturettes: De La Touloubre first.
Dourdan—Darracq cars first in all classes.
Gaillon—Darracq cars first in all classes.

In Brescia (Italy); Bexhill, Portmarnock, South Shield (England); Frankfort-am-Main, Breslau (Germany); Soemmering (Austria), everywhere and always the DARRACQS are winners.

Finally, *and this speaks louder to the tourist than all races and speed trials,* the following achievements have been made with **Standard 15-20 H. P. Darracq Cars:** New York—St. Louis—New York, 3,450 miles, on the worst roads, without stopping the motor. *World's Record.* Liverpool-Liverpool, 2,390 miles, non-stop run.

We can make immediate deliveries of cars of 15-20 H.P., 24-28 H. P., 30-35 H. P. Any part of the Darracq replaced from stock within 24 hours. Models from $4,500 to $9,000.

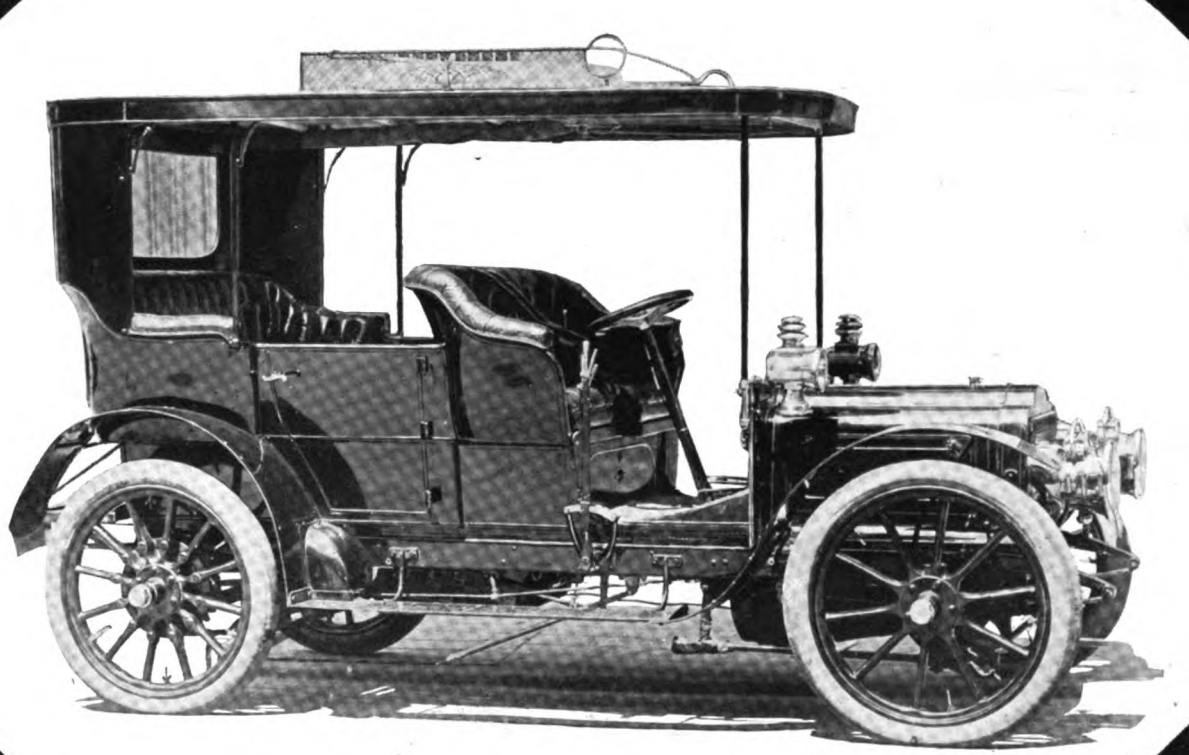
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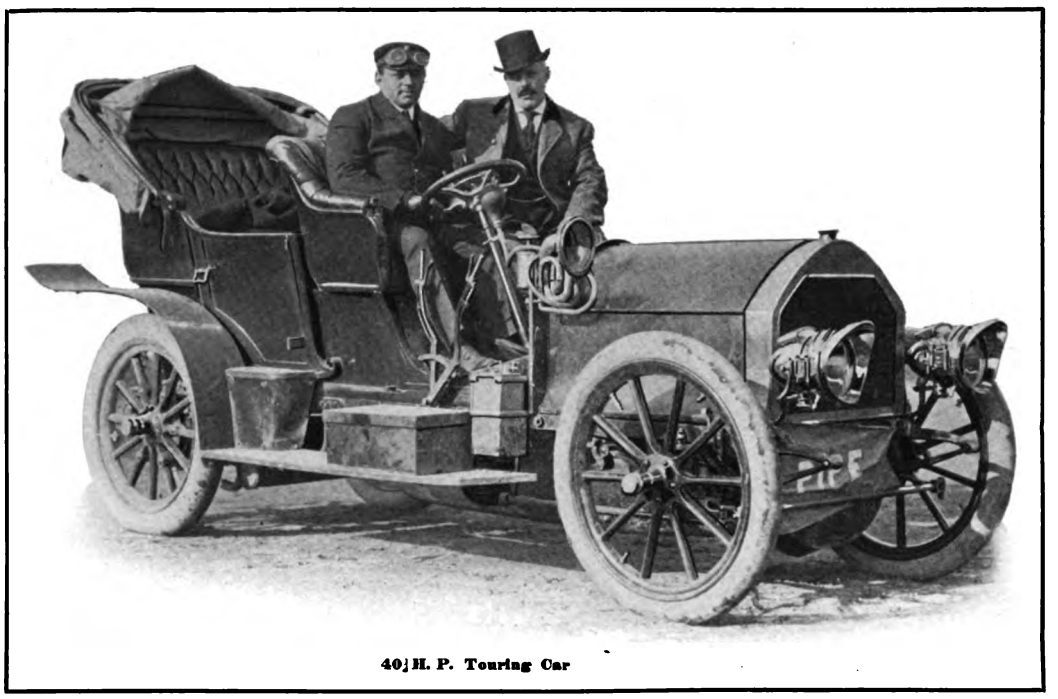
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Equipped with every possible improvement, including the unequalled Jenatzy electric clutch.

Purchasers of PIPE cars are protected by the strongest possible guarantees, both by the maker and the undersigned.

Permission to demonstrate the superiority which has made the PIPE car the favorite of the nobility abroad and of the experts in America is especially requested.

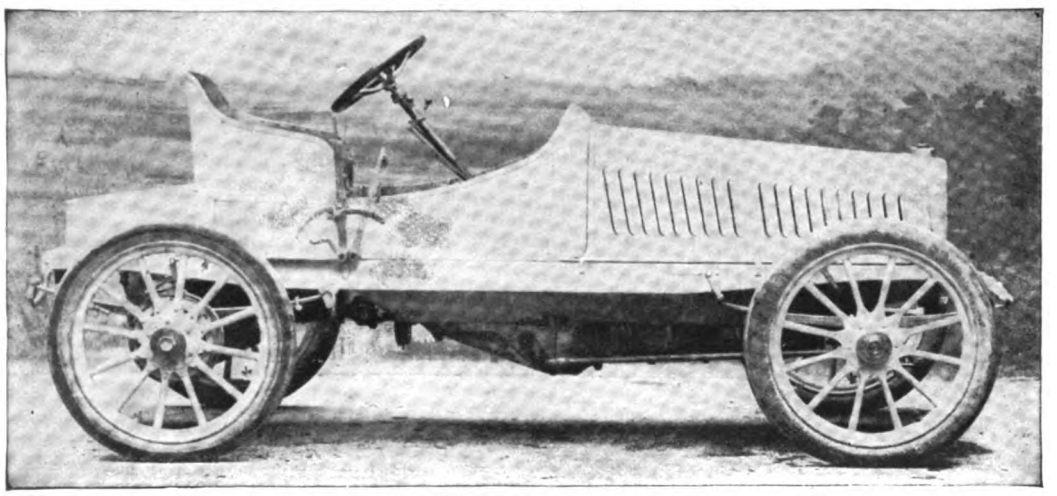
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That Decauville Car

IMPORTED

The Consistent Car



This is the Car which did not vary more than 1-5 of a second, mile after mile, in 15 miles. (1903).

This is the Car which made a mile a minute at Brighton Beach track, not varying 1-5 of a second mile after mile. May 6th, 1905.

This is the Car which ran so smoothly, so quietly and so uniformly that every one marvelled at it.

This is the Car which is exactly the same construction as our stock cars.

This is the Car which has run in track and road races for three seasons and which is now doing better work in this its fourth season than ever before.

This is the Car which causes its driver no worries about getting there and back.

Decauville Automobile Company

FORMERLY

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SOLE U. S. AGENT

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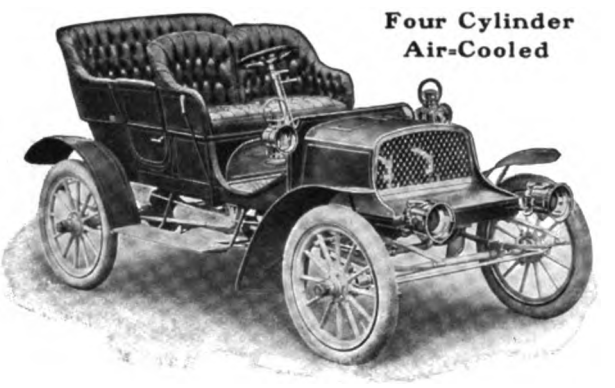
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Remarkable Performance of a Premier Car



A Premier climbed the famous hill known as Lewiston Hill (the higher), near Buffalo, N. Y., on the *high gear*, being the *only automobile of any size, power, or price* to ever accomplish this remarkable feat.

AND THIS IS NOT ALL

This hill is a mile long, very steep, and has three sharp turns in the roadway. The hill was ascended in *one minute and forty seconds*, or at the rate of 36 miles an hour, on the *high gear*. The car was returned to the bottom, the hill climbed half way, the car was stopped, started and run to the top again on the *high gear*.

It is probably no exaggeration to say that over one hundred cars have tried this feat, but this is the first and only car ever to succeed.

CAN THERE BE ANY BETTER ARGUMENT FOR BUYING A PREMIER?

This is not a "freak" performance, nor a special machine, but a regular stock car in daily use on the streets of Buffalo. For facts concerning this exhibition, see Buffalo Courier, News, Express or Inquirer, of April 27th, 1905.

Runabout $1250 **Rear Entrance $1400** **Side Entrance $1500**

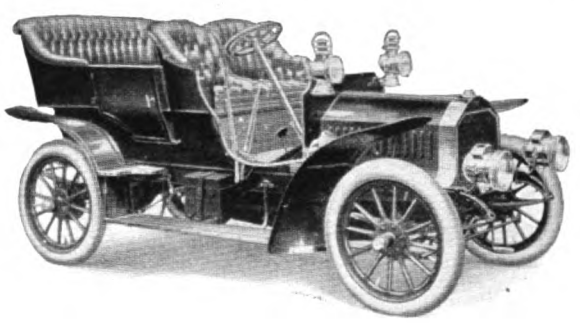
See our agents, or write for catalogue and copy of "Drivers' Opinions."

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THE CAR OF SIMPLICITY



NO EXPERIMENTING

is necessary with Cleveland Cars. They are thoroughly tested before they leave the factory. We have done all the experimenting ourselves, so that now Cleveland Car owners are reaping the benefit of our research and tests.

¶The complete chassis of the Cleveland Car is made by the Federal Manufacturing Company, one of the oldest and largest concerns in the business. Their yearly guarantee means something. These facts are sufficient guarantee of the reliability of Cleveland Cars, as any well informed automobilist can testify.

¶We therefore say to the prospective buyer of an automobile—"BRING AN EXPERT WITH YOU."

¶Immediate delivery 18-20 h. p. 2,800.

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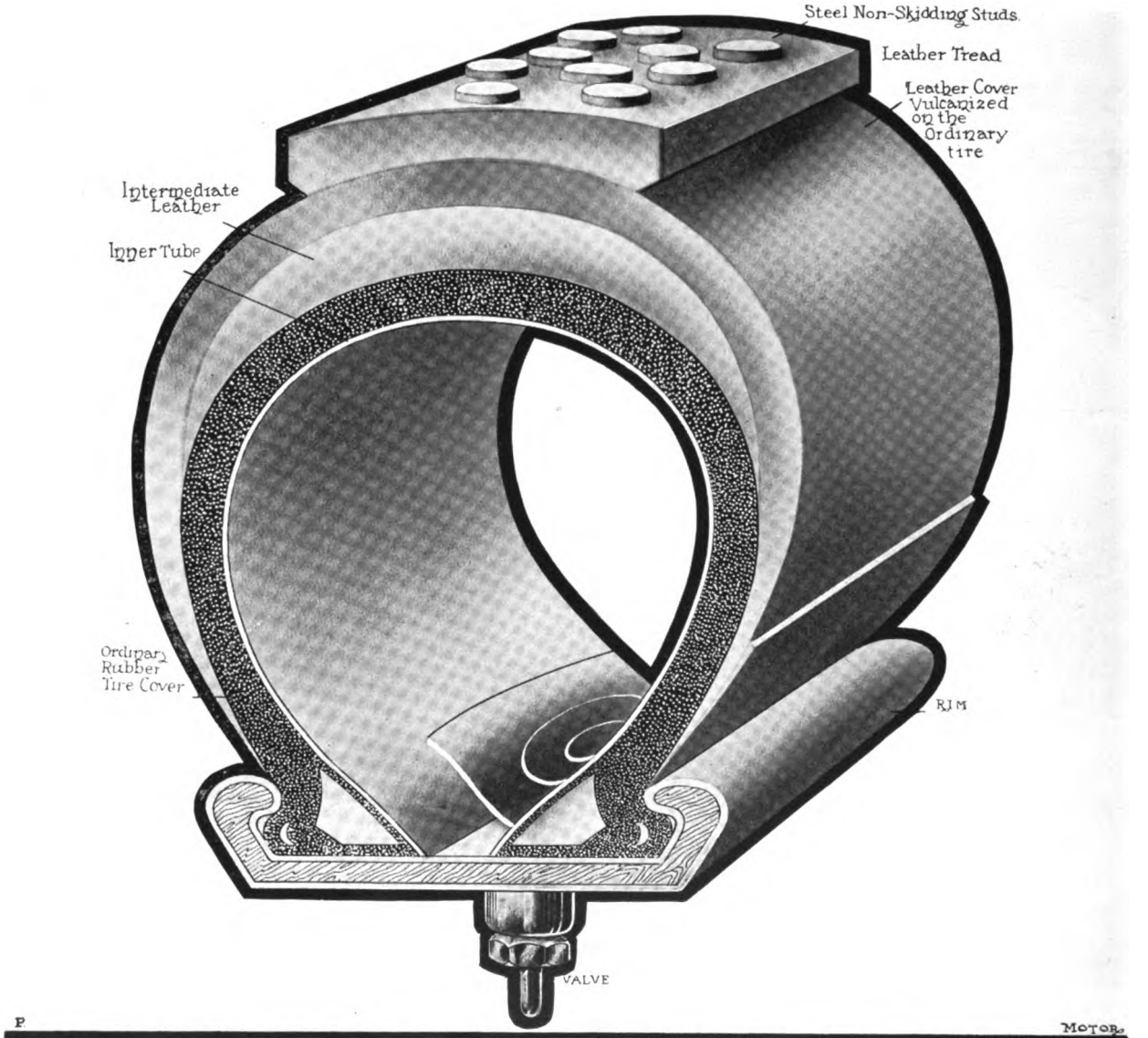
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THE GREATEST INVENTION OF THE CENTURY

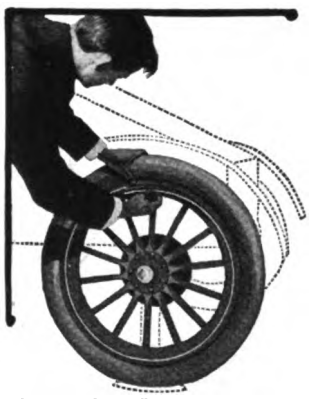
THE BRYANT RIM

Solving at Last the Dread "Tire Troubles" of the Automobilist

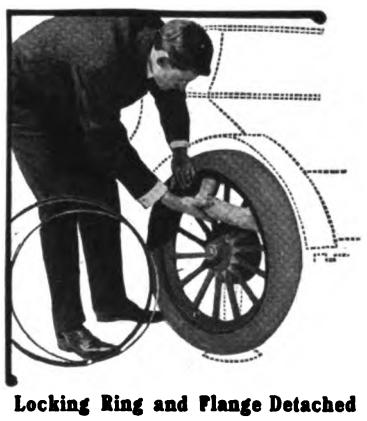
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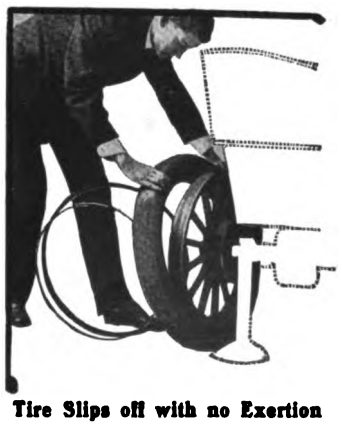
The Rim Complete



Pulling Out Locking Ring



Locking Ring and Flange Detached



Tire Slips off with no Exertion

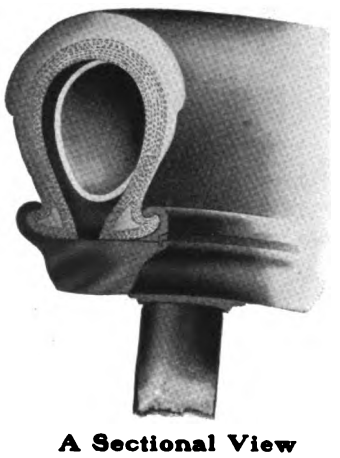
Sixty seconds will suffice to detach any tire from the Bryant Rim. In placing this new device on the market we appeal entirely to the good judgment of automobile and tire manufacturers, dealers and drivers and will convince them that the Bryant Rim is mechanically perfect and solves the tire-repair problem. If you have ever sat in the driving rain or the scorching sun while your chauffeur struggled with an obstinate tire, or if you have ever tried to do the trick yourself, you will appreciate the tremendous comforts of the Bryant Rims. Sixty seconds' work *with your hands only* and the tire is off. Sixty seconds more will suffice to put it on, and you haven't gouged the inner tube or scarfed the bead of the tire with detaching tools. A glance at the illustrations and we believe the principle will be plain to you.

THE BRYANT RIM

Will Fit any Clincher Tire Now Made

It is made to standard rim specifications, having an endless removable flange, securely held in position by a broken locking ring adapted to engage the rim channel and the removable flange.

You need not discard your present tires or wheels, for a small investment will equip your wheels with Bryant Rims, and your old tires will fit like easy shoes.



A Sectional View

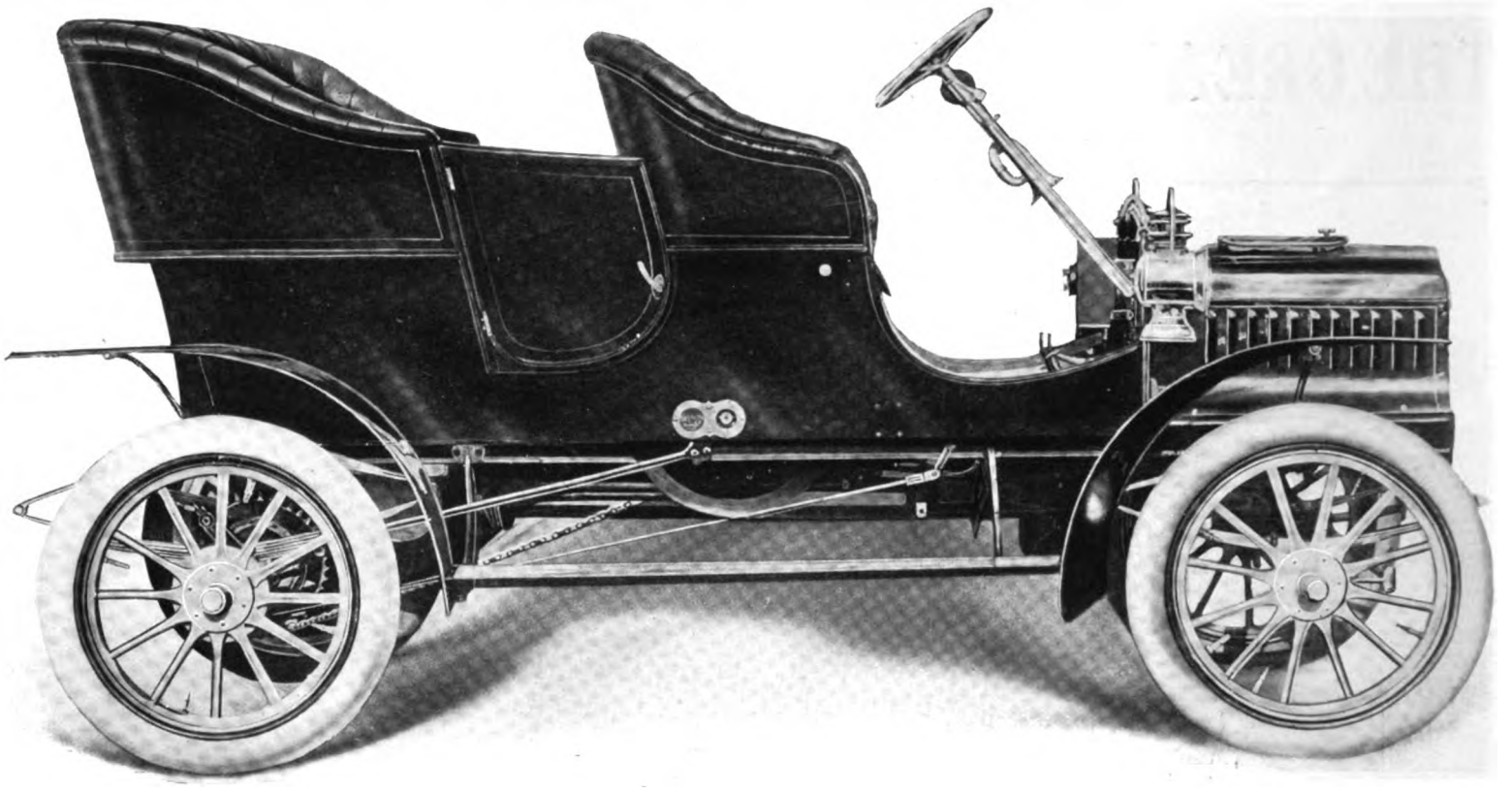
WARNING

The Bryant Rim is fully protected by patents, and dealers and users are warned against purchasing infringing devices from unauthorized persons. We have recently entered suit in the United States Courts against a company which has been displaying and offering for sale an infringement of our patent, and it is needless to say that we will continue this policy of protecting ourselves and our customers from infringers. Be sure it's "The Bryant."

THE BRYANT STEEL WHEEL & RIM CO.

452 HAYDEN BANK BLDG., COLUMBUS, OHIO

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The Ford Model F, Price $1200

In addition to Henry Ford's originality of design there is more actual value of material and workmanship in FORD MODEL "F" than in any other automobile ever built at the price.

It seats five people, climbs hills on high speed, has a roomy side entrance tonneau, is light, strong and rides like a Yacht. Has the latitude of speed on the high gear of a $5,000.00 car.

If you are thinking of buying a $700 or $800 car, put a few hundred with it and get a Ford Model F. If you think a $2,000 to $2,500 car is necessary, save $800 to $1,200 and buy a Ford Model F.

We have made Model F so good that it pays the first man to add a few hundred to his investment, and is good enough for the man who is willing to spend more. That was the idea in building the Model F; to give the car so much quality and build it in such quantities that we could make a price that would appeal to the greatest possible range of buyers.

People are going to get out of the idea of buying a new car every year. That is an absurd proposition. Who would think of buying a new carriage every Spring? You are entitled to a car that will last you for many years.

It is time for the Automobile business to settle down and give the Automobile buyers real value for their money.

However, most people have not learned how to buy an Automobile yet, just as most builders have not learned to build them.

Model F will be a good car next year, the year after, and years after that. It will not be out of date or out built for a great many years. *It is the boiled down experience of results obtained from thousands of successful cars.*

Model F has the stuff in it, the common sense, the power, the satisfaction, to meet the requirements of any ordinarily conservative man, for years. It has power to go anywhere. It has room and comfort. It is light and economical in maintenance. It is not too big for a handy runabout nor too small for a comfortable touring car. It has the best workmanship and material that money can buy.

We do not try to make it look like a millionaire's touring car, but it acts like one in all but the expense of maintenance, and it is good enough for any millionaire in the world. It has big tires, a light, strong frame, a powerful engine. It doesn't lug around several hundred pounds of extra weight to wear out your tires, to consume gasoline, and use up power. **It laughs at hills that make the heavy cars clatter and bang on the low gear.**

Mr. Automobile Buyer, keep this in mind. Big Touring Car bodies on cheap, roughly built chasses, will look like you are getting a lot for your money, but new sets of tires at $160 to $200 per set, big repair bills, clattering machines struggling with little hills will convince you that something besides bigness of looks is to be considered in buying an Automobile.

How to Buy an Automobile

When you buy a motor car look at all the cars. Find out what they *will do* and *what they have done* in actual service. Get demonstrations on the road. Select difficult roads and steep hills. Don't let a slick salesman spin you along on an asphalt pavement. After you have found what others will do, go to the Ford agent and **ask him to take you out in a Ford.** If it doesn't do as good work as a car costing half as much again, and better work than any car at the same price, our agent won't have a word to say. The quality is in the mechanical construction, and when you buy a Ford you are getting the result of Henry Ford's experience and the satisfaction of knowing you have a car that will always do what you ask of it.

Call on our agent. If you don't know who he is write and ask us and get our little booklet on Maintenance and what it costs to run a Ford.

FORD MOTOR CO., DETROIT, MICH.

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Don't Experiment—Just Buy a Ford

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A Monthly Magazine Devoted to Motoring of All Kinds.

Published by New Publication Company.
NEW YORK, BOSTON, CHICAGO, SAN FRANCISCO, LOS ANGELES.
Entered as second-class matter at the New York, N. Y., Postoffice, March, 1904.

Principal Address: 1789 Broadway, New York

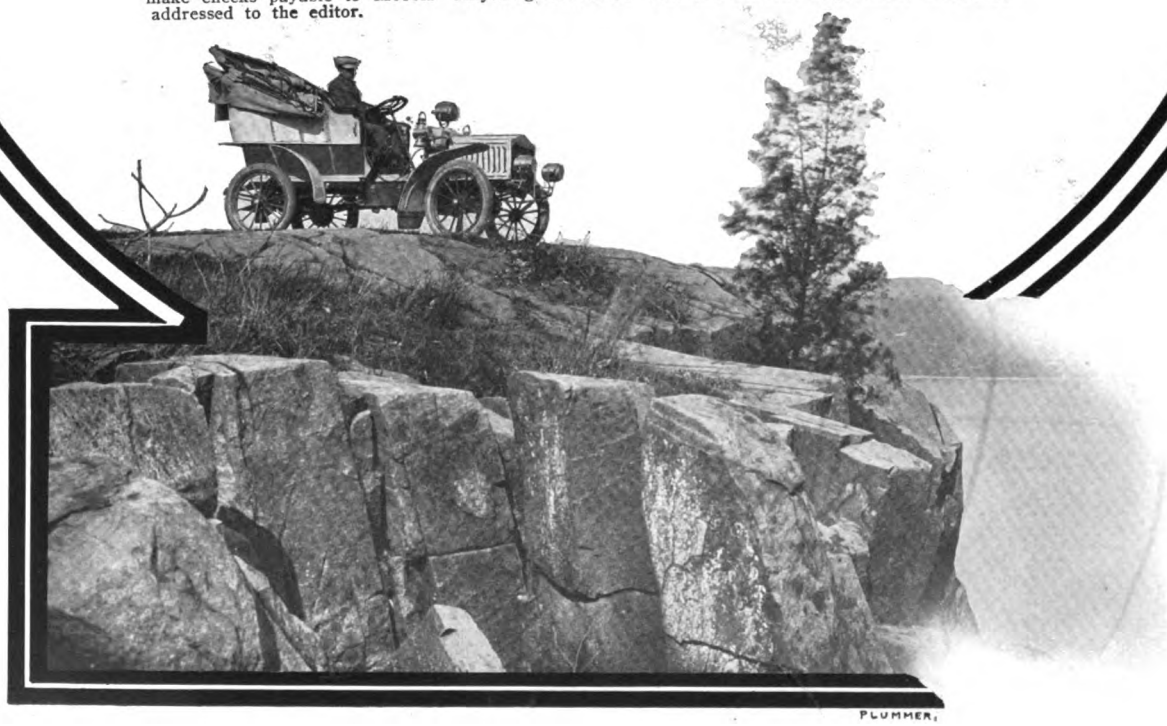
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THE MOTOR CAR AND THE MOUNTAIN STREAM

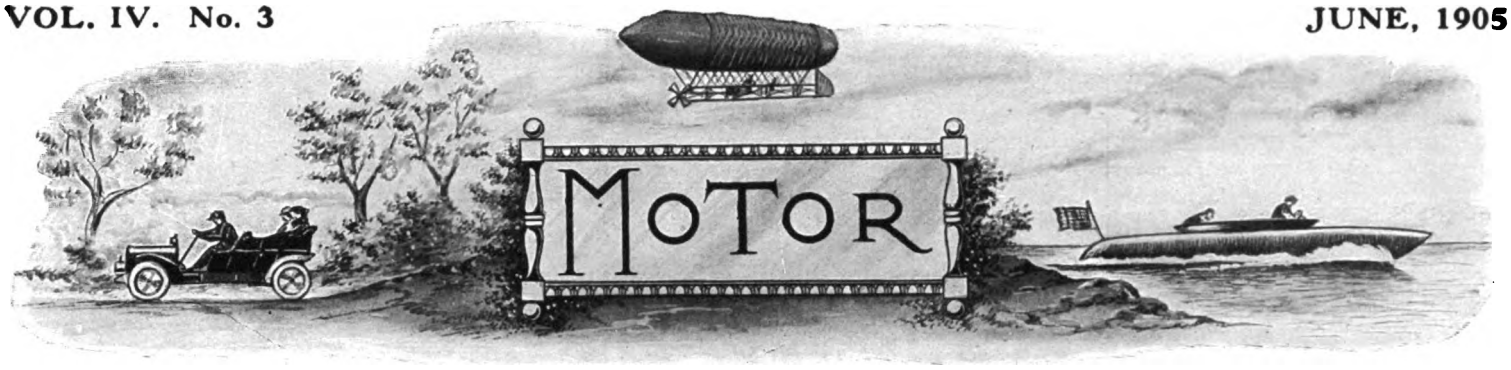
For cars may come
And cars may go,
But I go on forever.

ADAPTED FROM TENNYSON.



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VOL. IV. No. 3 JUNE, 1905



THE METROPOLITAN PLUVIAL PARADE

The motorists of the metropolis went a-maying this year (on the 29th of April), and the fickle month was as fickle as usual on that all-important day for motordom. Last year, too, old Sol refused to show his face, and it is now up to the paraders to change the date for next year.

A long time ahead metropolitan motordom planning to go a-maying and those motorists whose enthusiasm carried them out that day came home bedraggled and—well, not exactly sorry they went, but sorry it rained.

"It never rains but it pours"—trite as the saying it—has now a new meaning for those paraders who with hopeful enthusiasm gathered together in the Hotel Lafayette-Brevoort on lower Fifth avenue, near Washington Arch, where the parade started, and discussed the prospects of the weather clearing up.

But it poured for a while and then merely rained for the rest of the afternoon. Notwithstanding, metropolitan motordom determined to show the stuff it was made of, and at about 2:30 p.m. there was a getting up of steam and a cranking of motors and a turning of currents among upwards of two hundred motor cars, seldom seen at one time. Then with a din of "honks," the notes of the cheerful bugles shrilling through, division after division swung out into Fifth avenue on the way uptown by way of Fifth avenue to Claremont on Riverside Drive and then southward to Seventy-second street and the review before the officials and guests of the parade.



NOT SORRY THEY WENT—BUT SORRY IT RAINED

Lined along the way were rain-soaked or umbrella-topped spectators, or both, who wondered what kind of enthusiasm it was that made motorists—more particularly those in the open cars—brave a wetting, especially in such raw temperature. After the paraders had passed they went away convinced that, while they could not understand the deed, they fully appreciated the spirit, and felt that they had missed something by not being of the same enthusiastic tribe.

They saw, moreover, a wonderful aggregation of pleasure motor vehicles which represented the finest development of mechanical skill—cars to suit all tastes and pocketbooks, cars for all conditions, cars for the city, cars for the country, racers, touring cars, open cars, closed cars, cars with canopy tops, cars driven by steam, or by gasoline, or by electricity, foreign cars, American cars—all kinds of cars.

In the first division there was a medley of motor cars, from runabouts to landaulets and of both imported and domestic manufacture—the guest cars led by the Grand Marshal, M. M. Belding, Jr., in a Peerless and Captain Homer W. Hedge as marshal of the division in a Columbia. There were judges and aldermen and prominent citizens and the president of the Board of Aldermen, as guests of the Automobile Club of America under whose auspices the paraders paraded.

Then came the second division—the blue pennanters—under the guidance of Robert Lee Morrell, chairman of the American Automobile Association, in a Locomobile. These were the American-made gasoline touring cars—typical of the development of the breed at home, strong, staunch, sturdy, softly grunting over the rain-slippery avenue. There were giants and there were pigmies—but with power and line for use.

Behind these were the American gasoline runabouts led by C. H. Gillette in a Pope-Hartford—the red pennanters—and, of course, a most numerous one. It did not require a trained eye to see in the aggregation what a step—rather a jump and a long one—had been taken towards their improvement over the models of the preceding years.

The foreign cars—big and little, comparatively speaking, but mostly big, hiccoughing monsters of power and speed — while not numerous, were impressive. From the elegant landaulets to the hardy touring car—they ran the gauntlet of types. E. T. Birdsall, in a Decauville, led the division of imported cars.

The American steam cars, led by Augustus Post, in a White, came stealthily, silently along in good order and gave the spectators a sense of the presence of something uncanny. This, too, was a well-filled division, and evidenced the popularity of steam for power.

And all these cars in line impressed the rain-laved spectators, who went their ways feeling that they had seen the vehicle, not of the future, but of to-day. Then as the horse traffic closed in upon the heels of the last car the onlookers could not help making a rapid comparison—and feeling a little sorry for the horse.

In spite of the insalubrity of the weather, the parade showed a healthful, vigorous condition of motordom as an industry and as the "sport of the twentieth century." The curious onlooker saw the diverse array of self-propelled vehicles no longer through the "get-a-horse" spectacles, but rather through a clearer,

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broader vision. He was impressed with the fact that he saw something of ultimate universality, and felt that he, as an integral of the great public, no longer had the power to turn "thumbs down."

What impressed him, also, was the wide variety of form of pleasure motor vehicles passing before him—styles of body (to come to motoring phraseology) to suit all kinds of needs and personal tastes. There were open cars, closed cars, and semi-closed cars—specifically, the light runabout, the heavier-built touring runabout of slightly differing forms, the tonneau, the canopy tops with side curtains for further shelter, the entirely enclosed coupé and landaulet, and so on through a wide variety. He realized that inventive minds were turned rather toward the ultimate perfection of the details of convenience than in the direction of creating abortions of construction such as, perhaps, in the early days of motor car construction, aroused the positive antipathy of the lay public.



THE PARADERS GOING UP FIFTH AVENUE

Does it not seem true that the fates—whoever they may be—have ordained that the annual parade shall be a wet one each year? Notwithstanding the disappointing weather experienced by the parade a year ago, this year's turnout was numerically a most gratifying showing. Going up Fifth avenue as far as One Hundred and Tenth street there was rain a-plenty and the wet asphalt made many cars think they were crabs. Then the clouds, astonished at such perseverance, forgot to rain for a while, and the scramble up the hill to Grant's Tomb and the run southward along Riverside Drive to Seventy-second street where the cars were reviewed by the officials and guests lined up in their cars along the curb, was of passable comfort—and then the clouds remembered.

The assumption that the electric is the car for women was contradicted most forcibly by the fact that two women in the parade drove cars of other motive powers. Mrs. E. C. Griffith drove a 20-24 horsepower gasoline car—a Ford—and Miss Tony Paul, of Boston, was at the wheel of a White steamer, Winthrop E. Scarritt's car. The easy skill with which they handled their respective charges on the slippery asphalt of Fifth avenue was testimony that the gasoline and the steam cars share with the electric the favor of "my lady."

In Cincinnati there was a motor car parade, too, held under the auspices of the Automobile Club of Cincinnati. Led by the cadets of Woodward High School as trumpeters to herald the coming of the cars, the procession went from Garfield place to the Oakley racetrack, where some informal races were held. The Cincinnatians had a glorious good time, unmarred apparently by the descent of the rainmakers upon their camp, such as attempted to put the ardent New Yorkers to flight. The races held at the Oakley track were entirely a novelty: there were no records broken—nor necks—but the events developed the personal and friendly rivalry among Cincinnati motorists, which evoked as much excitement and enthusiasm as though the world's-record breakers were shattering all previous performances.

Apropos of paraders and motor car parades, many people



THE CLOUDS, ASTONISHED AT SUCH PERSEVERANCE, FORGOT TO RAIN FOR AWHILE

—those of the lay variety principally, and many motorists, also—ask the why and the wherefore, at the same time pointing in askance at the parade—for example—of the Brickhandlers' Union No. 4756, and the Peter Mulroony Political Association of the One Hundred and Fourth District, claiming that they don't feel disposed to be made the butts of the vulgar curiosity of the multitude. Like comments were not at all uncommon on the part of individuals and the press. The attitude is, however, not alone an erroneous one, but does injustice to the motorists who, taking a broad view of the matter, loan themselves and their cars to the purpose.

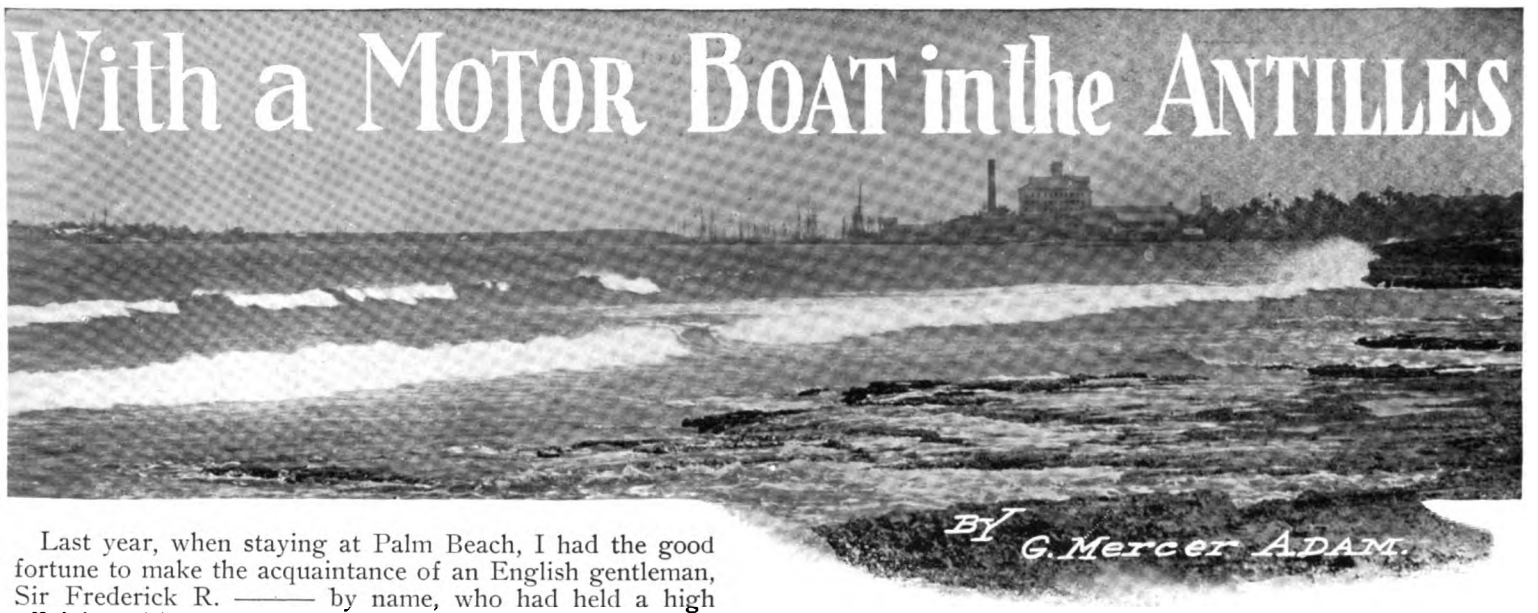


A FEMININE FORD PARADER

Motor-car parades are not for the mere display of an aggregation of wealth, nor for the flaunting of the personal vanity of possession. Those who conceived the idea knew beforehand that motor parades would do more toward wiping the prejudice from the public mind than any other means. Prejudice must give way before a practical demonstration of motor cars.

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With a Motor Boat in the Antilles



BY G. Mercer ADAM.

Last year, when staying at Palm Beach, I had the good fortune to make the acquaintance of an English gentleman, Sir Frederick R. ——— by name, who had held a high official position in India, and for some time had been a member of the British House of Commons. At the time I met him he was full of a projected tour among his country's island possessions in the West Indies; and to do so leisurely and enjoyably he had ordered, while at Tampa, a motor boat that he had seen and coveted at New York, which was to be forwarded by rail, for instant use, to Palm Beach. He warmly invited me to join him on his projected tour among the Bahamas, thence on to the Leeward and the Windward Islands, returning by way of Kingston, Jamaica, Santiago de Cuba, Havana, and the Florida keys to Port Tampa—an invitation which I heartily accepted.

On its arrival Sir Frederick and I had a look over the motor boat on which we were to make our extended excursion. A man from New York, who understood the working and sailing qualities of the craft and had come on in charge of her, Sir Frederick succeeded in prevailing upon to accompany us on the trip and act in the capacity of master-mariner. In addition, we picked up an old sailor familiar with the waters of the region we were to traverse, who was at home in most of the harbors and ports we were likely to visit, and this "old salt" was installed as pilot and general supernumerary. After everything had been inspected and overhauled about the boat and its lockers filled with the necessary provender for the voyage, we all set out on a lovely May day, on a sea without a fleck or ruffle, and with high expectations of an enjoyable water tour in the West Indian archipelago.



PALM BEACH—THE MECCA OF RECENT MOTOR BOATING

Our first port of call was Nassau in the Bahamas. En route Sir Frederick discoursed entertainingly on the possessions of Great Britain in the Antilles—on the resources of the local inhabitants, the modes of their government, and what is best adapted to their geographical environment, as well as to their racial characteristics. In these talks, as we lay in the bright sun smoking our pipes on the deck of the motor boat, he was most instructive. Very dramatic was my friend when he spoke of how Britain came into occupation of these possessions. Full of statistics was he also when he came to speak of each individual colony or group of colonies, from a commercial viewpoint, either as great pastoral preserves, fitted for raising vast herds of sheep and cattle, or useful in connection with the fishing and oyster industries, or for the production of cotton and tobacco, the growing of sugar, tea, coffee, rice, fruits, and spices, together with fine hardwoods, exotic shrubs and the useful rubber plant.

We were by this time approaching the Bahamas—a scattered group of British islands extending far to the southward. Our motor boat had made good and gratifying progress, and as the weather continued fine and the sea placid, the management of the actively pulsing, but comfortable little craft entailed no difficulty and exacted no strain of attention. Nor in the case of each one of us—thanks to the handiness either as cook or steward of both our pilot and our master-mariner—did the wants of the inner man in any degree suffer, for we not only lived well on the passage, but enjoyed with zest the coming of each recurring mealtime, while we each had our turns of regular, reposeful, and undisturbed sleep.

At Nassau, which is the capital of New Providence, we stayed about four days and interested ourselves by calling on some of the prominent members of the Executive Council and local government, who received us with much kindness. From



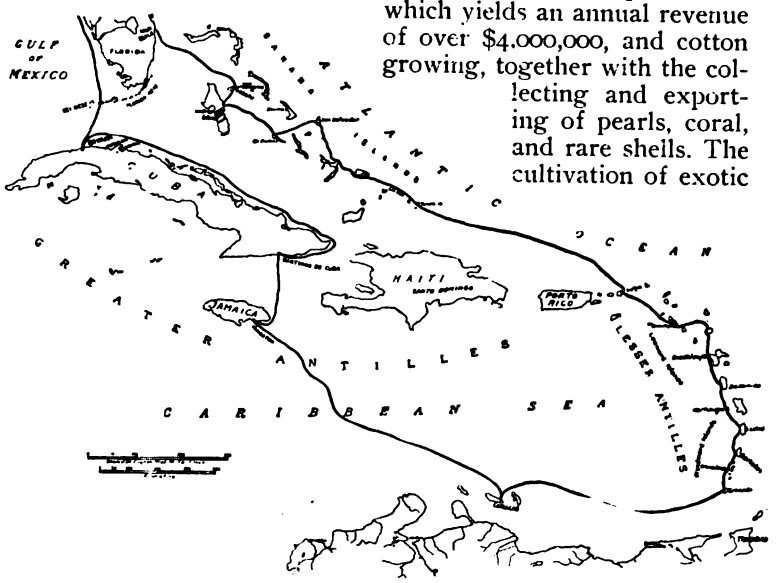
VIEW OF NASSAU, THE CAPITAL OF NEW PROVIDENCE ISLAND, OF THE BAHAMAS, A FAVORITE HEALTH AND PLEASURE RESORT

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GATHERING SISAL (AMERICAN ALOE), WHICH IS USED FOR THE MANUFACTURE OF CORDAGE

them we learned not a little relating to the extent and resources of the Bahama group, which we found consisted of twenty inhabited and many uninhabited islands, covering a total area of about 5,400 square miles. The chief of these, besides New Providence, are the Great Bahama, Abaco, Eleuthera, Andros, Exuma, Long Island, Crooked Island, the Great Inagua Islands, and Watling's or San Salvador—the latter of note historically as the island on which Columbus first landed on reaching the shores of the New World. The principal industries of the Bahamas include, besides fruit culture (the raising of oranges and pineapples chiefly), sponge fishing, the product of which yields an annual revenue of over $4.000,000, and cotton growing, together with the collecting and exporting of pearls, coral, and rare shells. The cultivation of exotic



flowers for the purpose of extracting perfumes, and the gathering of useful herbs having, like the castor oil plant, which here grows luxuriantly, valuable medicinal properties, are, with the fishing trade, other profitable occupations of the people. But the attraction of the Bahamas, we found, lay in the delightful climate, which makes the region a great resort for invalids and those suffering from lung troubles and nervous ailments. In this respect, its merits are undeniable, while about Nassau there are numberless enchanting scenes and a wonderful loveliness in nature's haunts, where humming birds and flamingoes disport, that cannot fail to charm and delight the visitor. The climate of New Providence is ideal, even in the winter months, when the thermometer ranges between the seventies and eighties; while the tranquility of the place vies with the delicious balminess of the air to make it inviting to all who seek its shores for health. Among other attractions of Nassau, it ought to be added, are good government schools, fine public roads, and almost incomparable facilities for boating excursions among the "Cays" and waterways of New Providence and the many lovely neighboring islands.



THE CIEBA, OR SILK COTTON TREE—THIS TREE IS IN NASSAU, BAHAMA ISLANDS

After our brief but most enjoyable sojourn at Nassau, we continued our cruise, calling next at ports on Andros and Exuma islands, and then steering eastward to Watling's, or San Salvador, Island. Here our visit was intended to be short, for we wanted to hurry southward to see the more notable of the Leeward Islands before crossing the Caribbean on our way homeward via Kingston (Jamaica) and Santiago and Havana (Cuba) to Florida. But at Watling's we were detained longer than we had desired to stay on the island by a little mishap that necessitated a few repairs. The detention was for the time acceptable, as it gave us the opportunity of escaping, in port, the effects of a rather severe hurricane which for two days raged in the region and played havoc among the shipping exposed at sea to its violence. Even after we sailed, we felt, in no little discomfort, the after-effects of the storm, in the choppy seas we had to traverse in the lengthy run southward to the Virgin Islands, just east of Porto Rico, which was our next port of call. On the way thither, as it happened, we had on one pretty rough day to run for shelter into a harbor on Turk's Island, the weather we met with being such as to incline us at one time to make directly for Kingston, Jamaica, by way of the Windward Channel, and so forego our visit to the Leeward group. Luckily, however, the sea and weather quickly moderated, and we were thus enabled to pursue our original design, to take a peep at the cluster of islands which comprises the Lesser Antilles.



A TYPICAL TROPICAL ROAD

We did not tarry at the Virgin group, at least not longer than to enable us to refit a little and take on supplies at Roadtown, on Tortola Island, the modest capital of the Leeward Islands' presidency. After interviewing some of the officials and peasant proprietors of the small sugar and cotton plantations on Tortola, we set out for Basseterre, on St. Kitts (St. Christopher), the seat of government for the islands of St. Kitts, Anguilla, and Nevis, and a place of some note for its export products of sugar and rum.

St. Kitts, which lies northwest of Antigua, is, with many of its neighbor islands, of volcanic origin. It was discovered in A. D. 1493 by Columbus, who gave it his Christian name. It is deemed the mother colony of the English and French settlements in the Caribbean. Being captured in 1702 by the English, and eleven years later ceded to the British Crown by the Peace of Utrecht, the island has made much progress under the latter, the chief exports being sugar, molasses, and rum. In spite of its droughts, St. Kitts is fertile, while it is notably healthy; it has, moreover, much fine arable land, particularly in the Valley of Basseterre and other depressions, lying peacefully at the foot of its series of mountains, the highest peak of which is Mt. Misery, over 4,000 feet above the sea level. At St. Kitts, we and the motor boat were objects of considerable interest to the mariners and stray loungers about the port, as well as to many of the officials of the place, to whom Sir Frederick had letters of introduction, and who showed us many civilities and attentions. So hearty was the kindness of the latter, that when our visit was over, and we made ready to continue our tour, we had a cordial "send-off" from at least a score of the prominent townspeople of St. Kitts and Nevis, who, as we were leaving, came down to the harbor to bid us good-bye.

Passing the strait, two miles in width, that separates St. Kitts from mountainous Nevis, which, with Anguila, is administratively joined, we made temporarily for the island of Antigua, the seat of the general government of the Leeward Islands group and the scene of extensive operations in the cultiva-

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tion of the sugar cane. Here we made a brief stay at St. John's, the capital, and also visited English Harbor, the naval station on the island, presently proceeding to Dominica, situate between the French possessions of Guadaloupe and Martinique, and attractive to the tourist by reason of its fine mass of lofty mountains and the tropical luxuriance of its vegetation. At Roseau, the chief town of Dominica, we made a few days enjoyable sojourn, straying inland the while to take a look at the prosperous sugar estates and orange groves on the island and to inspect the old Carib industry in basket work and curious pottery, the work of the natives.

From Dominica, we made for St. Lucia, passing Martinique on the westward, and after a pleasant cruise reached Castries, the chief town on St. Lucia and its seat of government. The island is notable for its wild and romantic scenery, and for the remarkable displays of the sulphurous mountain, Sonfrière, which we found in our visit to be in a violent state of eruption. Seen at night, from the harbor of Castries, one of the best in the Antilles, the sight of this natural curiosity was a grand one, the crater occasionally ejecting great volumes of sulphurous steam, varied by fountains of boiling water, as Sir Frederick remarked, like the geysers he had seen in Iceland. The bare hillsides and desolate region about the volcano bore witness to this great and ever-active convulsion of nature. In other parts of the island, there are, however, many smiling valleys, irrigated by numberless streams, where cattle browse, and corn, edible roots, and vegetables are raised, not to speak of the tracts given up to the cultivation of the sugar cane, cocoa, and tobacco. For its size (about 240 square miles in area, with a population approaching 50,000) St. Lucia is fairly prosperous, its annual revenue being in the neighborhood of $3,500,000, or about the same as that of Grenada.



THE ANCHORAGE OF THE INNER BAY, CURACOA, DANISH WEST INDIES

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From St. Lucia, we designed to make for Barbados, the most windward of the Caribbean Islands; but the day we left Castries there was a heavy sea on, with a long Atlantic swell, and we deemed it safer, as well as more comfortable, to steer for Kingstown, St. Vincent, and possibly take in Grenada, before undertaking the long homeward stretch across the Caribbean to Kingston, Jamaica. We therefore headed due south and threaded our way among the cluster of islets that environ the island of Grenada to Kingstown, entering in due course the beautiful bay of the port, overlooked by the varied spurs of Mount St. Andrews. Here we found it necessary to make a few nominal repairs to the motor boat, as she had suffered somewhat from the breakers and heavy surf as we approached the island, and we wanted to be in good trim for the onward journey to Grenada and the long stretch of water we had to cross to reach Jamaica and the Greater Antilles. A few days sufficed, however, to put us again in good shape, and these we enjoyably spent, for the most part, in visits to the courteous British administrator of the colony, who was most free in his hospitality, with trips inland to see the paradise of begonias, orchids, and magnificent tree-ferns that abound in the cultivated parts of the island.

Our final spin southward, to the Crown colony of Grenada, 67 miles from St. Vincent, we did in fine shape, reaching the commodious harbor of St. George one day at dusk, after a run at the rate of sixteen knots steady. During our visit to Grenada, one of the most delightful resorts in the West Indian colonies of the British Crown, we were regaled daily with delicious quaffs of chocolate, made from the native cacao tree, which, evidently, here grows to perfection. In the last days of our stay at the capital of Grenada we debated the question whether or not we should go on to the Port of Spain, the capital of Trinidad, which was included in Sir Frederick's program, but we finally decided to give up the trip thither, in view of the advancing season and the long track we had to cover along the Venezuela shore and across the Caribbean from Point Gallenas to Jamaica. Abandoning Trinidad, and with it Tobago, we therefore set out homeward, making but one stop for the replenishing of our larders at a port in the Dutch colony of Curaçoa, thence heading northwestward, past the mouth of the Gulf of Venezuela, for Kingston.

The incidents of our passage to Jamaica, it is not necessary here to narrate, nor is there much of import to add of what our doings were at Kingston when we finally safely reached the port. Sir Frederick had in the way of letters of introduction the open sesame to officialdom in Kingston and thereby to many interesting details of the government and the commercial and natural resources of Jamaica, and other important particulars. Jamaica is the military and commercial center of the entire group of the British West Indies, which include the Bahamas, the Barbadoes, Trinidad, and the Leeward and Windward group of islands, which like a finger points its way southward toward the coast of Venezuela. This island, including Turk's Island, has an area of 4,370 square miles and a population of nearly 800,000. It is one of the most important colonies of the British crown and exports practically $10,000,000 worth of its products

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THE MOUNTAINS OF MARTINIQUE A PASSING GLIMPSE



THE HARBOR OF SANTIAGO DE CUBA, MADE FAMOUS BY THE SPANISH-AMERICAN WAR

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BARGAINS IN SECOND-HAND MOTOR CARS

By M. C. Krarup

Only a few years ago every motor car offered at second hand was a trap discarded for grievous faults in materials and construction.

This condition is changed, however. Probably three out of every four motorists who buy new cars this year first dispose of the vehicles that have served them for the last year or two. Each seller means a buyer, and the latter usually a novice in the ranks of motorists. In this manner, the trade in second-hand cars is gradually becoming a foundation of the prosperity of motor car commerce.

As far back as 1900, gasoline motor cars that would run very acceptably, and which could be improved from time to time by repairs and remodeling of details, were made in America. In Paris, cars from 1898 are frequently seen in the streets.

The great majority of those who bought motor cars in 1901, 1902, and 1903 belonged to one or the other of two classes—either those who must have only the very latest models, or those who began their motor car experience with a car of small power—usually a "runabout"—and with each succeeding year climbed a notch higher on the scale of horsepower and of vehicle comforts.

Thousands of the cars turned out in those years have been sold three or four times and are still in the market, worth more or less money—according to their original construction and the treatment given them by their successive owners.

It is estimated that 100,000 motor cars now are in use in the United States. Of this number, probably 30,000 second, third, and fourth-hand machines will change owners this season, while perhaps 40,000 new ones will spring into existence.

Many of the old ones doubtless should have been chloroformed some time ago, on Professor Osler's plan *pro bono publico,* but it is a fair guess that one half of their number still will be able to yield more than sufficient service and pleasure to offset whatever disappointment, if any, may accompany their use. The trade in these bargain motor cars is at all events becoming a matter of personal interest to a rapidly-growing number of persons.

Questions as to what each of these vehicles is properly worth and how to avoid those that, all considered, are worth less than nothing, will, however, arise in nearly every instance of a contemplated transaction and are not by any means always easy to answer to the satisfaction of both seller and buyer. To take it for granted that the seller knows what his article is worth is in most cases no safer than to assume that he will give the intending purchaser the benefit of what measure of knowledge he does possess. The dealer, when he sells on a commission basis, usually guarantees nothing and seldom takes pains to ascertain the condition of the vehicle. He sells it for what it has been represented to him to be and adds some good qualities of his own surmising, to speed the sale. The purchaser must look out for himself, or take chances.

He is the novice. His satisfaction is precious. What may be done to secure his contentment?

As to deciding what make of car he shall buy, he is better situated than the purchaser of a new car, having the reputation of any "model" to guide his choice, if he is not too indolent to make the necessary inquiries. Many purchasers of motor cars of new improved design, would pay a snug sum for such a peep into the future as would be equivalent to this advantage enjoyed by the second-hand buyer. The latter's danger, on the other hand, lies in the uncertain condition of any car that has been used and perhaps abused, that may have been repaired or remodeled by unskillful hands, or "doctored" with cheap and uncertain expedients to run for a little while longer, only to develop defects after the first hard usage, necessitating extensive repairs at the shops of the manufacturer—repairs that the latter often will refuse to make if there has been much tampering with his original construction.

Some knowledge of motor car construction in general of course is desirable for the second-hand buyer, but, as it is admitted that even manufacturers make mistakes, the layman should not trust his own theories too much. A little knowledge is particularly, as well as proverbially, dangerous. A severe road trial of the second-hand car is worth many hours of conversation, inspection, and reflection. This is well understood, but frequently the inexperienced permits himself, nevertheless, to be persuaded or "bulldozed" into accepting as sufficient a brief trial run that really tests none of the vital points; or, a pretty newly-varnished carriage body so attracts his eye—or so wins the approval of his wife—that the rattling of the gears, the "knocking" of the motor, the need of the lowest gear for a small hill and the overheated condition of the radiator, fail to impress their true meaning on his mind.

A car that is specially "fixed up" to look well and that is apparently comfortable in its carriage qualities seldom is worth the money asked for it. Its troubles are likely to crop out in the mechanical portion. It is not very probable, however, that a second-hand car which is recommended as being in good condition will be stalled or collapse on a trial trip limited to a few miles from the garage. Auction motor cars with cast-iron motor shafts are not yet manufactured in this country, though Paris is acquainted with the brand. Our bargain will "travel" in a fashion, and to the inexpert, not thoroughly familiar with the perfection attained in the best motor cars, the difference between a $2,000 quality, good for several years, and a $200 quality, mostly good for the repairman, is not always apparent. His ear probably is not trained to detect tell-tale sounds from the gear box, the connecting-rod coupling, the exhaust, much less the fainter indications of leaking valves, worn dynamo brushes or magneto bearings. Each defect spells a possible difference between the price asked and the one which it would be wise to pay. Frequently the dealer himself does not know whether he has a winner. Smartness, rather than deep insight in mechanics, is his forte. The price he asks is gaged as much by what the customer apparently does not know as by what he, the dealer, does know. Hence it pays doubly well for the buyer to have and to show familiarity with motor car requirements and be able to put his finger on the spots where wear and weakness are apt to crop out. It does not injure his chances if he displays a little more knowledge than he would be able to explain; the dealer does the same.

To do this neatly, the motor-car-bargain hunter must have practice. Not necessarily practice in driving motor cars or practice in actually buying second-hand cars, but practice in examining them. This seems a little startling at first. Persons who would train a year for salesmanship hesitate to train two days for a purchase. But on second thought, it becomes suddenly self-evident that it is very rash to buy a motor car at second-hand without having acquired some practice bearing on the important transaction. The practice referred to must take the place of a more deeply-founded knowledge that could not be absorbed so readily nor applied so easily. It is to be remembered, in this connection, that in looking into the merits of a second-hand car, it is not practicable to take it all apart. Cost, time and the seller's temper are all opposed to such thorough-going processes. So the question is to devise some simple rules for examining a car quickly and to acquire proficiency in applying these rules, thereby incidentally impressing the seller duly with the impossibility of concealing shortcomings. He then will make a virtue of frankness, to whatever extent he thinks the case requires.

The rules of examination are those relating to: 1.—The reputation of the car, meaning a sort of intangible syllabus of other persons' experience with cars of identical construction. 2.—Indications of violence and abuse, which may have caused invisible as well as visible deterioration. 3.—The trial trip: and, 4.—Positive signs of normal wear and tear.

1. The reputation of a car is not always wholly synonymous with the reputation of its maker. The march of progress in construction and design sometimes follows a zig-zag line. It has happened that the refined X-car of 1903 or 1904 turned out a less serviceable vehicle than the unrefined X-car of 1902. Imitations of foreign models and straining for high power in some instances also caused a manufacturer to lose a year's growth before he found safe footing again. This accounts for some of the motor car oafs in the second-hand market.

When keeping his ears open for the susurrations that betoken reputation, the bargain hunter will do well in making inquiries about these off-year creations.

2. The metal of a spring, an axle (especially one that revolves), a gear tooth or shaft may be "fatigued," without showing outward signs of this condition. The most experienced engineers are not quite agreed whether this "fatigue" is not always the result of an original flaw, only aggravated by violence and abuse. However this may be, the sudden fractures

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THE MOTOR 'BUS *vs.* THE ELECTRIC CAR

By Henry Chilvers

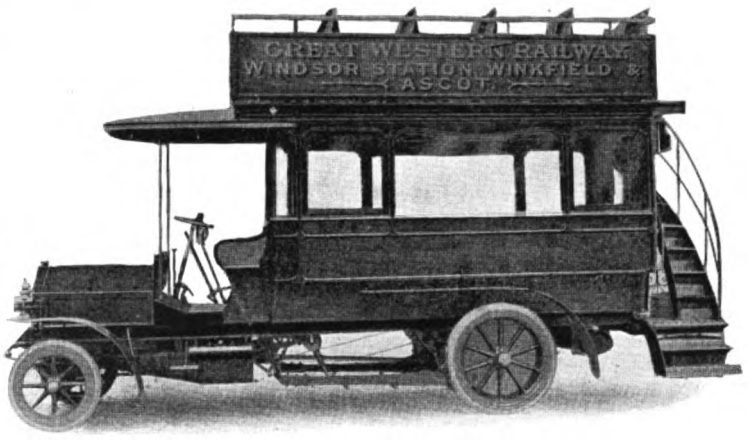
That a new conquest for the motor car is impending, is the evident import of discussions now going the rounds of the British technical press. Though the new development has not yet attracted much attention in this country, it is of the utmost interest to Americans because it threatens a field wherein American engineering and inventive genius have been supreme from the first.

The electric street car, which in every important city in the civilized world has come to be the chief means of transporting urban and suburban populations from point to point—from home to office, work to pleasure, etc.—is facing inroads upon its utility and popularity that bid fair to end with almost total substitution for it of huge, self-contained motor omnibuses.



A TYPICAL LONDON "MOBUS"

The capacity of some of the motor omnibuses that so far have been built ("mobuses" they are commencing to call them in England), and their economy and success in operation is amazing. Vehicles capable of seating comfortably as many as forty people are regularly built in quantity, and are in common use in large cities and in small, while annual profits of as high as $10,000 a vehicle, on an initial investment of half of that, are among the phenomenal results in a financial way. This is due not so much to lower cost of operation as it is to the suppression of waste in operation. For instance, electric street car companies have the alternatives of running their plant light, and therefore at excessive expense, or of shutting it down altogether during part of the night, thus totally neglecting the traffic there is to be handled during those hours. With motor omnibus service, such a condition is met simply by taking off as many vehicles as may be desired—perhaps leaving only one or two in service—whereby expenses are reduced proportionately, for, there being no power plant to watch over and maintain, only the individual vehicles that at any given time are actually running and carrying passengers can be relied on as a source of outlay.



A TYPE OF DOUBLE-DECKER THAT THE GREAT WESTERN RAILWAY APPROVES

According to the figures given by one successful English company, each omnibus costs $4,000, carries 34 passengers, and averages 700 miles a week. The total weekly operating cost is $90, and receipts average $300, leaving a margin of over $200 a week net profit. This is equal to an annual return of 260 percent on the original investment. No allowance for depreciation is made in the foregoing figures, but even with this assumed to be most excessive in amount, the motor omnibus line would appear to be a far better proposition than the average street railway system is or is ever likely to be.

The advantages of the motor omnibus are many. It being a totally independent unit, it is affected neither by such accidents to the power plant or transmission system as cause an electric railway system to suspend, nor by accidents to individual vehicles, which blockade a whole line. Each omnibus is driven by an entirely independent power plant of its own, which in its best forms is as reliable as the motor equipment of the average street car, and which, in any case, if deranged, can have no effect upon other omnibuses belonging to the same or any other system. Should one vehicle break down, others can go around it, and traffic is not interfered with, nor can it interfere with the omnibus service. It is not even necessary to adhere to fixed lines of travel. Changes in route can be effected at will by the driver of each car, as business may demand or traffic conditions require. Moreover, passengers can be taken on or unloaded at the curb, thus making the service much cleaner and safer than that of present systems.



A 36-SEAT, 24-HORSEPOWER, DOUBLE-DECK OMNIBUS

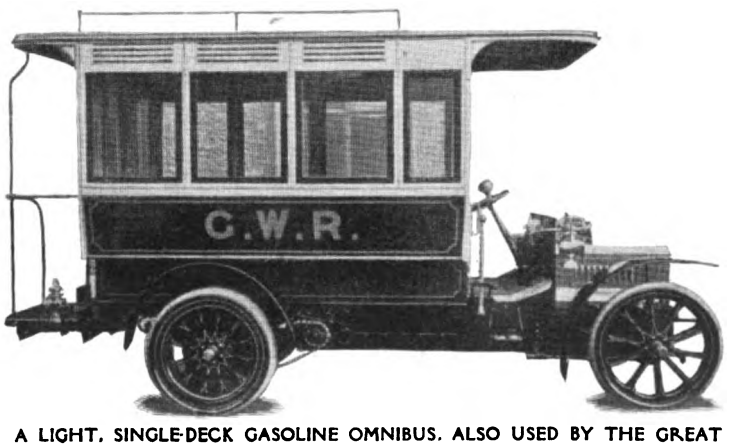
The enormous initial expense of a street railway system, its entire inflexibility as to route, and the great expense of keeping its power plant in operation during the hours of the day when only a few cars need run, all are avoided by the motor omnibus. Another objection to the street railway is the fact that it must constitute a permanent eyesore along all streets where its franchise extends, it at the very least requiring tracks that spoil the street surface and interfere with other vehicles, and often involving overhead wires that are unsightly and dangerous. Incidentally, suppressing the overhead wires does not eliminate the track nuisance, and, by involving conduit construction or storage-battery service, makes the financial proposition still worse by the enormous outlays it introduces into initial investment or operating expenses.

The one essential to general use of motor omnibuses is well-paved streets and roads, but since other interests demand

(Continued on page 62)



A BODY DESIGN THAT WAS AWARDED A PRIZE BY THE MOTOR VAN AND WAGON USERS' ASSOCIATION



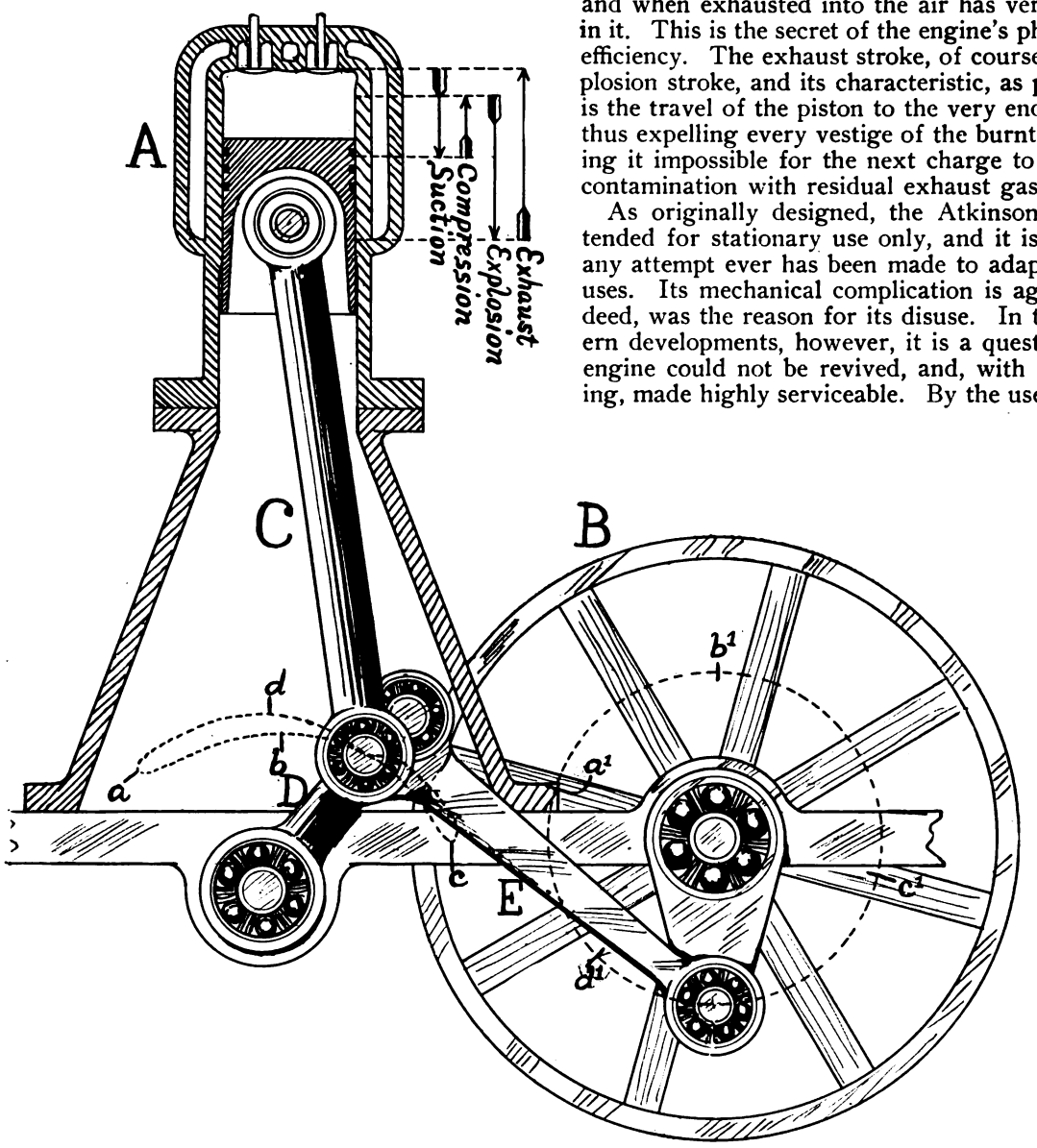
A LIGHT, SINGLE-DECK GASOLINE OMNIBUS, ALSO USED BY THE GREAT WESTERN RAILWAY

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A NOVEL FOUR-CYCLE ENGINE

Though it is commonly supposed that the ordinary four-cycle engine, as it appears in the best modern motor cars, is about as perfect a motor of its kind as can be built, it is an interesting fact that some years ago there was developed and afterwards discarded a four-cycle engine in many ways more perfect and efficient than the best of the types now in common use. This was the Atkinson motor, named after its inventor, and in which the four-cycle principle was developed to a greater degree of refinement than it ever has been since.

The basic principle of the Atkinson engine is that of varying the stroke of the piston at different periods in the cycle. This permits realization of two important advantages. One of these is perfect scavenging of the cylinder on the exhaust stroke, the piston traveling right up to the cylinder head and thus clearing out all of the burnt gases, instead of, as is now usual practice, leaving an amount of exhaust gases that corresponds in quantity to the size of the compression space. The other advantage is the carrying of the piston much farther out on the working stroke than is possible with the ordinary type of four-cycle engine, in which the piston travels the same distance on the working stroke as it does on the suction stroke.



The variable stroke of this engine is obtained by the use of a toggle joint between the connecting rod and the crank. This complication, though originally considered somewhat objectionable mechanically, is exceedingly ingenious and efficient. Moreover, besides affording the advantages of the variable stroke, it also permits of one power impulse during every revolution of the flywheel, without more than one cylinder to the engine. This is twice as many as can be secured with any other type of single-cylinder, four-cycle engine.

The action of the Atkinson engine in detail can be better understood by reference to the accompanying illustration, in which A is the cylinder, B is the flywheel, C is the connecting rod, and D and E are the two members of the toggle joint. The connecting rod, it will be noticed, is linked to E at a point a short distance to one side of the place where E is hinged to D. The path of the lower end of the connecting rod, during one revolution of the flywheel B, is shown by the double-looped dotted line on the drawing, and on which a, b, c, and d indicate the positions of the connecting rod at the termination of the suction compression, explosion, and exhaust strokes, respectively. The position of the crank on the flywheel shaft during corresponding stages of the cycle is indicated by the letters a^1, b^1, c^1, and d^1. The range of piston movement during the different strokes is shown by the vertical arrows drawn to the right of the cylinder, and to each of which the name of the stroke whose length it represents is appended.

It will be noticed that when the suction stroke commences, the piston is close to the head of the cylinder, and that this stroke terminates long before the piston is as far down as it goes on the explosion stroke. Upon the return of the piston—now on the compression stroke—it does not travel to the head of the cylinder, but stops sufficiently short of it to leave room for the charge under proper compression. Ignition occurs in the usual manner at about the time the compression stroke is completed, and during this stroke the piston goes almost twice as far down as it did on the suction stroke. The consequence is that the charge is expanded almost to atmospheric pressure and when exhausted into the air has very little work left in it. This is the secret of the engine's phenomenally high efficiency. The exhaust stroke, of course, follows the explosion stroke, and its characteristic, as previously stated, is the travel of the piston to the very end of the cylinder, thus expelling every vestige of the burnt gases, and making it impossible for the next charge to be weakened by contamination with residual exhaust gases.

As originally designed, the Atkinson engine was intended for stationary use only, and it is not known that any attempt ever has been made to adapt it to motor-car uses. Its mechanical complication is against it, and, indeed, was the reason for its disuse. In the light of modern developments, however, it is a question whether this engine could not be revived, and, with careful redesigning, made highly serviceable. By the use of ball bearings in the connecting rod, toggle-joint, crank, and crankshaft bearings, it seems certain that any slight loss in mechanical efficiency would be more than made up by the increased thermal efficiency, and consequent fuel economy. Ball bearings of the highly successful, D. W. F. non-adjustable type, which were described in last month's MOTOR, should prove very practical if used in this manner, something as shown in the accompanying sketch of the Atkinson engine.

Another thing that militated against the Atkinson engine at the time of its first appearance was the crude status of gas engineering in many minor respects at that time. Slide valves instead of poppet valves were used, and carbureters, ignition mechanisms, governing devices, etc., were ineffective and unreliable, so it is little wonder that any engine of that period should have proved unsuccessful.

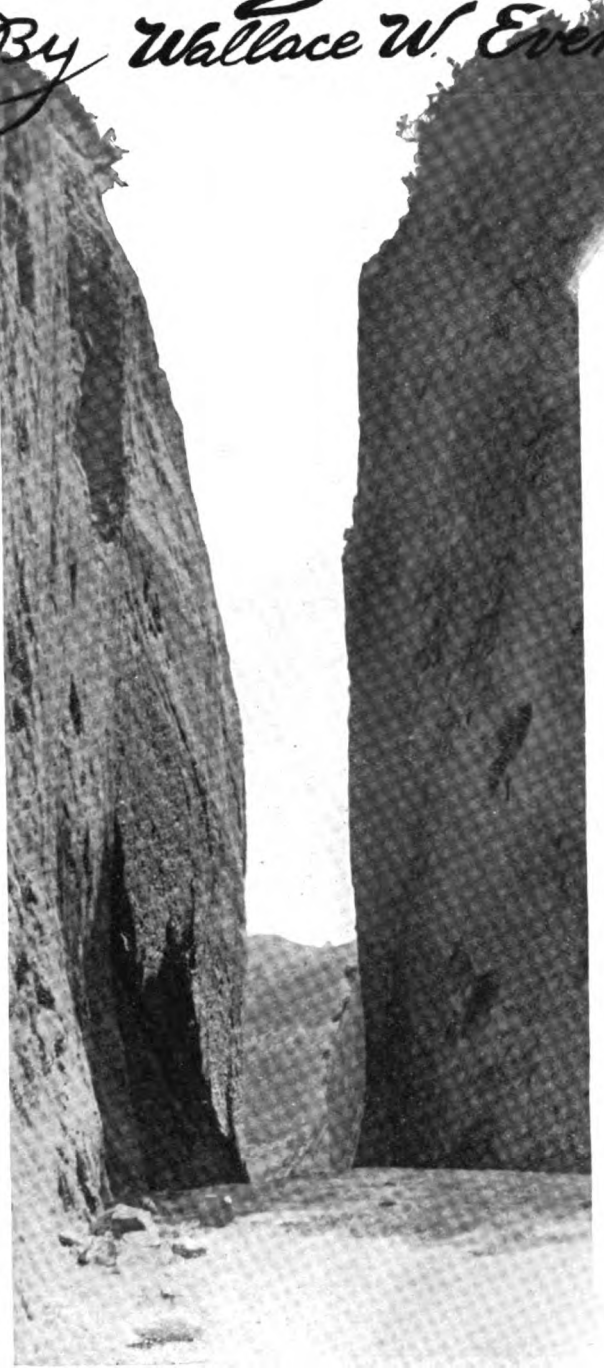
With modern details and attachments, some enterprising motor-car builder of the near future may find that the many theoretical advantages of this variable-stroke motor are thoroughly capable of practical realization. In any case, it is certain that there is some interesting, and perhaps very profitable, experimenting to be done in this direction.

It is safe to make a prophecy that the principles which underlie the Atkinson single-cylinder, four-cycle gasoline engine will find favor in the sight of some experimenter who perhaps will successfully put into practice what—in the Atkinson engine—for all practical purposes remains still in theory.

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Motor Meanderings in California

By Wallace W. Everett



LOS OLIVOS, March 7, 1905.

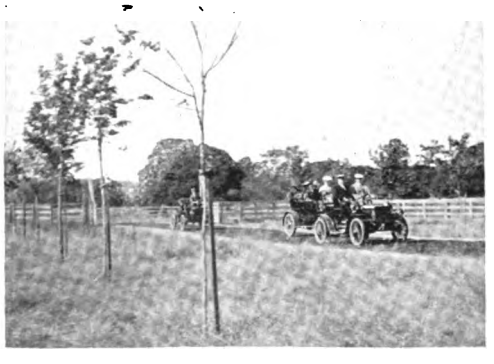
Old Fellow:

Up and down, down and up, so saith the third day's trip. Only crossed three mountain ranges today and these were no park grades either. This trip would never do for a low-powered car, so tell Jack to get rid of his little fellow, and—well, you might just as well tell him to get one out of the same nest as old Red Raven. Never a hitch; and we struck sand in plenty on the run into Santa Maria from San Luis Obispo. We left the comforts of the hotel at Paso Robles and bowled along the rankest kinds of roads, all cut up by the late army camp at the Henry Ranch, passed Templeton and Santa Margarita, and then rose up in a few minutes to the summit of the San Luis Obispo Mountains by the Cuesta approach. The view that spread itself out before us as we reached the summit was one of the most magnificent I ever enjoyed. We had left at about six in the morning and reached this place before the sun had been over the horizon very long. In the freshness of the dawn, the San Luis valley stretched out before us in an ever-opening series of vistas, and, as the car coasted down into San Luis, as it is called for short, one forgot all the trials of the day and entered into the enthusiasm of the moment. It was grand, inspiring, and inspiriting, and we spoke of the poor motorists of Illinois and like states, who could not know of the delights of such a trip. I wonder why more of them, and from other Eastern points, do not ship their cars here to California to go in for such perfect tours as we are now enjoying. You know what our trips have been, so you can realize what this one is when I say that it even surpasses the others. But I will refrain from rubbing it into you, for I know how much you would give to be with us.

At San Luis Obispo we found another old mission. It looked too new in its preservation, and was too close to the clang of the almighty dollar in the nearby marketplace to create more than a moment's passing interest. Santa Maria was next before us, and there was little of interest to attract us. The roads continue good to excellent, but vague rumors reached me from stop to stop about the Arroyo Grande trip, so I had it in my mind that we would soon be up against the real thing. And we certainly did get it! Up the grade we went before we reached the town. Sand to the right of us, sand to the left of us—but the doughty Red Raven did not hesitate for a minute. A little careful driving and much power carried us through; but, to tell the truth, I had my doubts in several instances as to whether we would make it. The farmers along the road are wonders when it comes to distances. You meet one and he tells you it is "nigh onto four mile to the crossroads," and you go about six when another whiskered expert gives you a long-distance jolly to the effect that it's just about three miles "straight ahead." Then you keep on until you wonder if you are ever going to get there. That was the way it was all along the Foxen Canyon road to Los Olivos. This is the best manner of going through, for you avoid further sandy stretches like at Arroyo Grande. You run about a mile out on the regular county road from Santa Maria, and then turn to your left for eighteen miles to a little Catholic church, where you turn to the right. Then the road is straight and unavoidable until you get here. But, like the elevator boy's life, your trip is all ups and downs, though you get there sooner or later. We came over the last high range just as the glorious sun was sinking behind the mountains of the West. The evening's coolness was upon us—a welcome relief from the warmth of the day's journey. And then down the grade to this hotel de luxe where comfort is obtainable, and there's a good bed to rest in, clean as a whistle. That is one of the good points of this trip, like almost all of the others in California—the night accommodations are far better than you get elsewhere in the whole country. Well, I'm going to bed now, for tomorrow's run will be a hard one, because of the severe up-and-down grade conditions out of Gaviota. Perhaps you need a little sleep after reading this long screed, but, just the same, the trip is so high-class that it deserves every word of praise we can give it.

Yours,

THE JOURNEYMAN MOTORIST.



CALIFORNIA HAS LEVEL ROADS TOO

SANTA BARBARA, March 8, 1905.

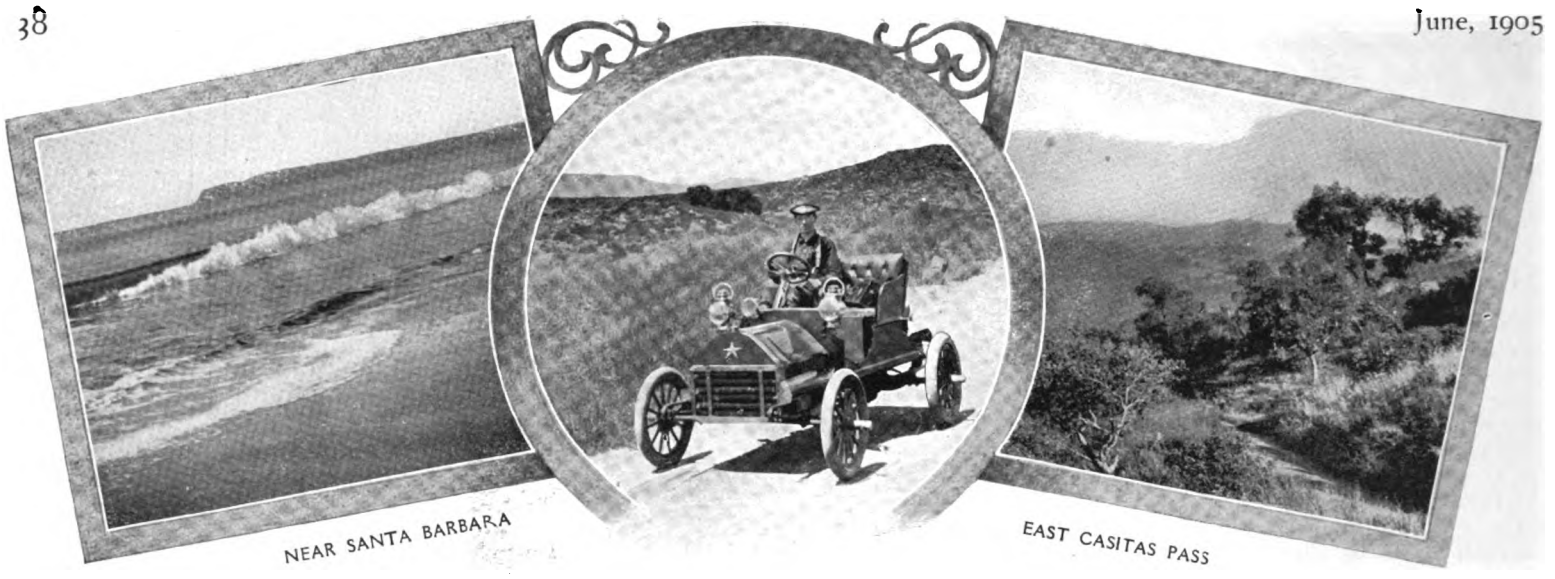
Dear Ed.:

So you are going to meet us here for Los Angeles and the return trip. Good for you! We do not need you for luck for we have not even had a puncture, but you need to get in on the pleasures we are just concluding. You may drive the sixty miles on the return from here to Los Olivos. It was beautiful as far as Gaviota, but this last forty miles was too much for yours truly. In that distance we crossed thirty canyons anywhere from 50 to 150 feet deep, with no run to carry us up the other side and the grades as steep as 24 per cent. The car took every one of them, but it took considerable nursing to get us up. When I come down again



A TEMPORARY TENT GARAGE EN ROUTE

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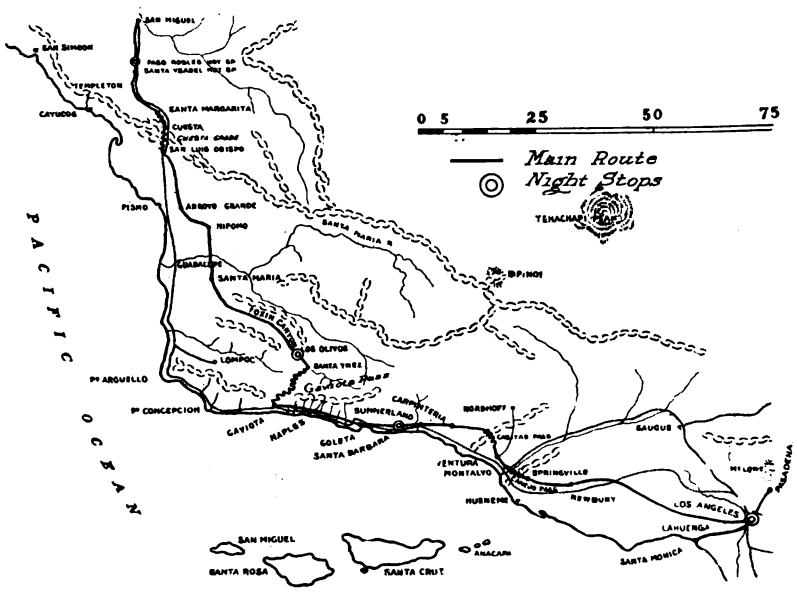
OVER MOUNTAIN ROADS

I will know when to let you take the wheel. No more tonight, Ed., because I am going to bed. I want to be up early in the morning to whet my scenery appetite around this delightful place. We stay here ten days, so hurry up and enjoy it with us. Yours for the bed, HOUSTON.

SAME PLACE, March 18, 1905.
Poor Old Man:

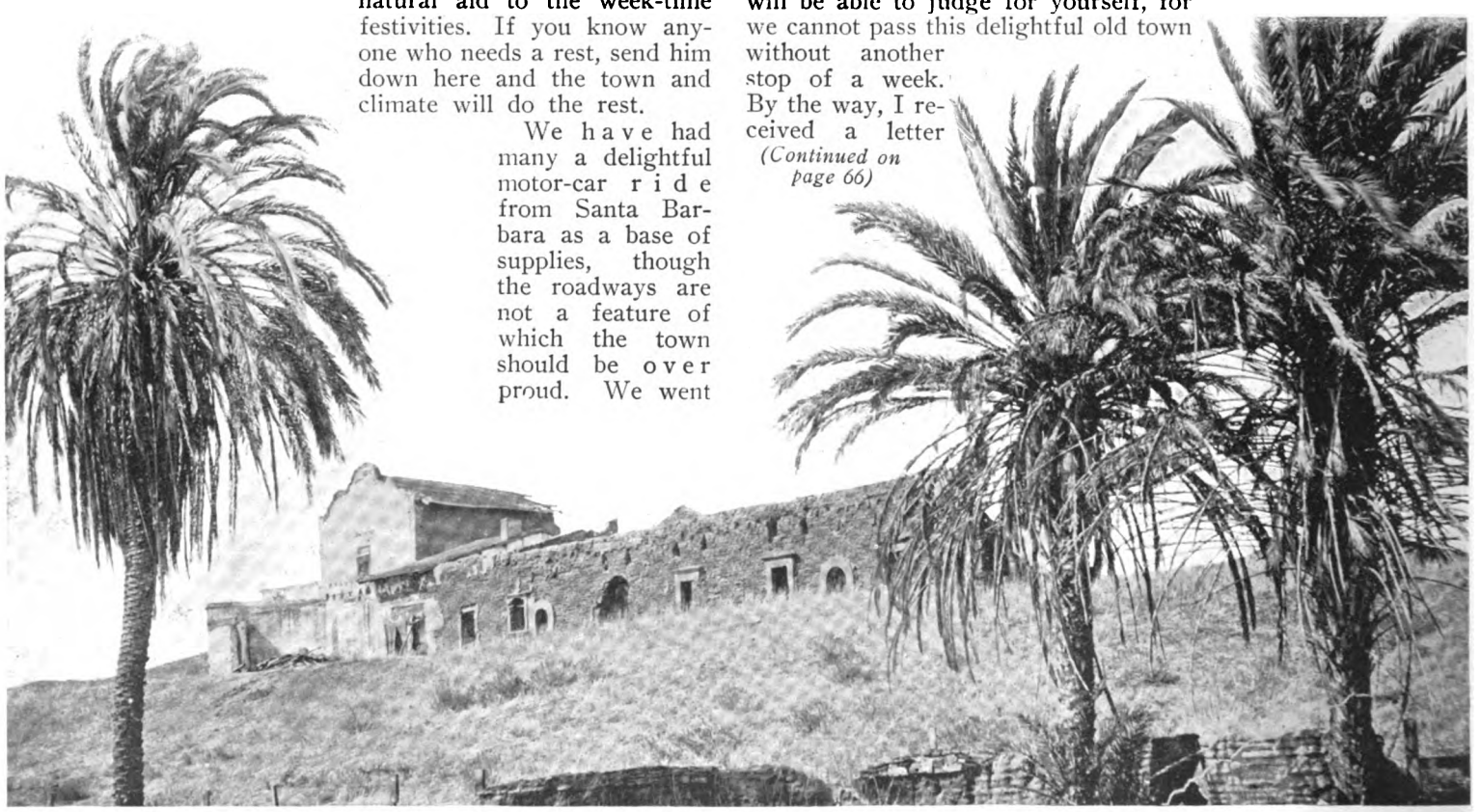
You must have received my short postals since I wrote you of our arrival here, and I am very sorry that you cannot get away before we leave here for Los Angeles. But then you will be with us on the return voyage, so be happy. Of all places, Ed., this is the finest I have encountered anywhere in America. Santa Barbara might well be called the gala spot of California, for there is some sport going on here the whole year round. For the last week the annual tennis tournament has been attracting the crowds down at the Potter, while there are the exciting polo games over at the field to the west of town. The best people of the Southland seem to congregate hereabouts, and the city is bustling with the puff-puff of motor cars, and with the silent gliding of the traps and carts. Every one is on pleasure bent, and the balmy air and sunny skies give their natural aid to the week-time festivities. If you know anyone who needs a rest, send him down here and the town and climate will do the rest.

We have had many a delightful motor-car ride from Santa Barbara as a base of supplies, though the roadways are not a feature of which the town should be over proud. We went up to the beautiful Mission Santa Barbara and were greatly impressed with its surroundings. The building itself has been somewhat spoiled by the modernizing coat of mortar that hides the natural tones of the old-time bricks, but the grounds are most delightful, while the wonderful mountain background makes one wish never to leave this delightful locality. You know this is about the only location in America where the combination of ocean and mountain conditions is so beautifully pronounced. It would do some of our eastern and middle-western cousins a world of good to journey out here with their motor cars on a freight train, and then wander in them at will over this pleasant countryside.



There are tempting rides out through Montecito, Summerland, Carpinteria, and up the Mission Cañon and the other hill districts. though some of the mountain roads are forbidden to machines, because of the dangers that have materialized in some serious accidents at different periods. You can get a permit to take the Hope Ranch trip, from the Pacific Improvement Company. Then your local voyagings will be fraught with a culminating interest and your lust for the beauties of Nature greatly satiated. However, when you come back with us, you will be able to judge for yourself, for we cannot pass this delightful old town without another stop of a week. By the way, I received a letter

(Continued on page 66)



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THE EVOLUTION OF THE MOTOR CAR

By Professor Frederic Remsen Hutton, of Columbia University

While the art of building and designing the motor car is still a very young one, it may seem reckless to entitle a line of thought by so pretentious a word as "evolution." On the other hand, it often is serviceable while on the road itself to look backwards over the path that has been already trodden, even if there is a long vista before the observer and he is ignorant of what is just around the bend in front of him. It seems, therefore, that it might be interesting to glance back over that period which has been covered by the annual exhibitions of the motor car industry and deduce something of the tendencies and needs of the art.

The evolution of the motor car may be approached from several points of view. For the purpose in hand, and within the limits of a short article, it will be possible to cover only two of these avenues of approach. These viewpoints will be:

1. *The Evolution of the Function of the Car.*
2. *The Evolution of the Form of the Car.*

Taking up first the evolution of the function of the motor car, it would appear that the present demand, which has developed in the five years of motoring in the United States, has produced four types, each with a function of its own. The first of these, at one end of the history, is the racing car. To an engineer, this type is one for which speed is the one element to be sought, and everything else is sacrificed to this one object. The carrying capacity is reduced to the lowest terms and every pound of superfluous weight is eliminated, leaving only so much as is unavoidable for withstanding the severe stresses to which the high motive power of the type exposes the structure. No one, for a moment, would speak of this type as a pleasure vehicle. It is designed exclusively for work. A specially narrow object, and that only, is sought in its design. The features of the type imply that only a limited number will be made or wanted, by reason of the high cost. These cars are not useful except for their special purpose, and are only to be used by those who have time to devote to this special direction of sport and who are physically qualified to take part in it. The speed, and the attendant risk, are also elements that put it in a class by itself. There is no question that we have not as yet reached the limit of speed, and the development of high power in a narrow space and with light-weight per horsepower unit, all have been instructive and useful.

At the other end of the series is the commercial vehicle or motor truck. Its function is to carry heavy weights, but, as it is mainly a vehicle for city use, it is not expected to carry these weights at high speed. While the racing machine is a high-speed, light-weight type, the motor truck is a low-speed, heavy-weight type. It may be that the motive power required will be nearly the same for both types, but, in the horsepower idea of pounds moved through a distance in feet, in the racing car we have small weight moved through large distances, while in the motor truck we have large weight moved through small distances in the unit of time. The commercial vehicle is largely an experiment and has made comparatively little impression upon the industrial community. It is to be seen to a limited degree in the larger cities, but it is not yet in one of its important fields, which is the rural and suburban regions. The field for which this type is believed to be one of the most promising is the business field, since a man can go without his pleasure vehicle when it is worn out, or when he is tired of it, whereas the business man must replace his business wagon to conduct his deliveries, and the demand will be continuous and steady when it has been created by successful solutions which commend themselves to hard-headed business buyers. The field for this type ordinarily will include:

(a) Delivery from shops to residences in cities.
(b) Suburban delivery from shops.
(c) Carrying of produce from farm to market.
(d) The carrying of produce from farm to trunk line of railway.
(e) The express business in the rural district; the mail business in the rural district.
(f) The handling of heavy loads such as coal and metal.
(g) The handling of bulky articles such as furniture.

The third type is the pleasure vehicle.

The present trend for this vehicle is unmistakably towards a type carrying four passengers and designed for long runs at reasonably high speed, with its full complement of a traveling party. This type has been very wisely called the touring car. It is a type that holds the center of the stage at present, so far as the manufacturers are concerned, and so far as the inclination of the buyers controls the latter. The car is not intended to go as fast as the racing machine, since for touring purposes part of the pleasure is derived from seeing new scenes and going slowly enough through a beautiful region to absorb some knowledge or impression of its beauty. On the other hand, the demand for luxurious comfort, protection from the weather and from dust, have made a heavy body imperative and therefore a reasonably high power.

(a) The conditions attaching to this type and favoring its development are leisure and probably wealth on the part of the owner. He must be free to get away from business to use his car and to be the master of his own time, if he proposes extended trips.

(b) The requirement of comfort makes the body costly and therefore the whole vehicle costly. Its weight and its live load make it expensive to run and bring a severe wear upon the pneumatic tires with which it must be fitted for the comfort of the occupants.

These two conditions put the touring car somewhat upon the same footing as the four-horse drag or coach in its more luxurious and costly types, and, as the number of buyers and users will be limited, the effect which these vehicles produce upon the industry will be limited to the cities where wealth accumulates and luxury manifests itself. From the older civilizations where wealth is usually accompanied with leisure the luxurious type has received its widest development. America has borrowed its body luxury from the French, while working out its motor problem largely along its own lines.

The fourth type is one that has at present no generally accepted designation, but is one to which the title of service car would be widely applicable. This is a type which is in need of further attention from the leaders of the industry, which they have allowed to drop from their consideration by reason of the commercial attractiveness of the expensive car or pleasure vehicle. The purpose of the service car is distinctly the transport of persons from place to place, rather than the conduct of riding parties or road tours. It is a car whose prime requisite is that it should be instantly ready for service in all weathers and should be absolutely reliable in the same sense that the horse and buggy is reliable as a business adjunct to daily affairs. Such service car is to take the place of the horse for doing the following things:

(1) It shall take the children to school in the morning and bring them home at night.
(2) It shall take the family to the railway station and bring the man up from the station to his suburban home at night.

(Continued on page 92)

The Auto and the Idiot

The Auto and the Idiot
  Came moting on the scene;
The air was full of violets
  And odors fresh and clean—
And that was odd, because, you see,
  Their fuel was gasoline.

"O glory!" cried the Idiot,
  "We're forging right ahead.
If I had wheels upon my feet,
  I'd also run," he said.
The Auto moaned, "It is a shame
  Your wheels are in your head!"

The Auto and the Idiot
  Ran bang into a fence.
"To steering," said the Idiot,
  "I'm giving thought intense."
And that was odd, because, you know,
  He hadn't any sense.

Adown a pleasant country lane
  They journeyed fast and far
Until they spied a gentleman
  A-smoking his cigar.
"I'll hit him hard," the Auto cried,
  "And minimize the jar."

Across the quiet gentleman
  Right merrily they sped.
"Pedestrians should look alive,"
  The busy Auto said—
And this remark was odd, because
  The gentleman was dead.

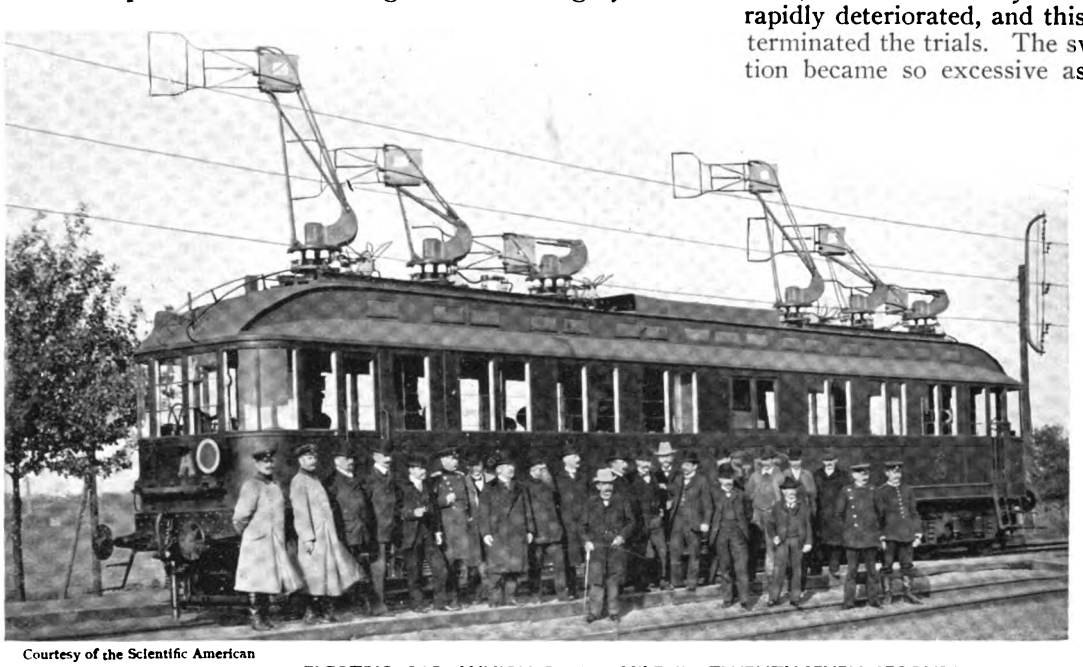
—*Puck.*

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A MILE IN TWENTYSEVEN SECONDS

There has been much speculation concerning the practical limit of vehicular speed, and every new speed record, whether made by motor cycle, motor car, or railway vehicle, brings forth a fresh series of discussions concerning the interesting subject. Within the last few months, a prominent French scientist has committed himself to the positive assertion that it is totally impossible for any racing motor car, within the accepted weight limit of 2,204 pounds, to exceed a speed of a mile in thirty seconds—one hundred and twenty miles an hour. On the other hand, there are motor-car builders who confidently expect to place this record to their credit within the very near future, and it is the belief of those best informed concerning the subject that their hopes are not unreasonable.

In this connection, it is interesting to note that at least one vehicle has exceeded the limit stated, a specially-built German electric car, on an experimental track between Berlin and Zossen, having made a mile in less than twenty-seven seconds—a rate of about one hundred and thirty-one and one-half miles an hour. This truly amazing speed required about two thousand horsepower for its attainment, and the phenomena observed in connection with it were in many respects most interesting, especially to motorists afflicted with the speed mania, on whose pastime they have an obvious bearing. As is generally known, the motor car straightaway record at present stands at a mile in 32⅕ seconds, equal to about one hundred and ten miles an hour, this speed having been made by H. L. Bowden's "Flying Dutchman"—a double-engined, eight-cylinder, 120-horsepower Mercedes, several hundred pounds over the weight limit—which achieved its truly terrific gait on the world-famous Florida beach, between Ormond and Daytona, during the motor meet there last January.



Courtesy of the Scientific American

THE BERLIN-ZOSSEN ELECTRIC CAR, WHICH RAN A MILE IN TWENTY-SEVEN SECONDS

It has been observed, even at lesser speeds than the speed of the electric car just mentioned, that the air resistance is the chief resistance to be overcome, and that the problem of the future in the building of speedy motor cars, is to increase the ratio of available horsepower to the projected or total front area of the vehicle, rather than merely to seek disproportionately high power for a given weight.

For a subject apparently so simple, surprisingly abstruse formulas and great diversity of opinion are current among scientific men as to just what wind or air resistance amounts to on given areas at given speeds. Be the facts as they may, there is no doubt but what the resistance is high, and more than one pilot of a racing monster has found it almost essential to have a head rest, to relieve his neck of the strain occasioned by the terrific going. Sixty to ninety pounds on the area of a man's face is probably not an unreasonable estimate of the wind pressure at a speed in the neighborhood of one hundred and twenty miles an hour. Since the pressure increases at a rate about proportionate to the cube of the velocity, what it may amount to from one hundred and thirty to one hundred and fifty miles an hour can be better conjectured than endured.

With the Zossen electric car, it was found necessary to have the front windows made of plate glass one-half an inch thick, to make breakage impossible, and the manner in which birds and small insects were killed against this thick glass, and the front of the car generally, was startling evidence of the tremendous air pressure which the tremendous velocity created

Birds, beetles and other flying insects, even those swiftest on the wing, which would commence to rise from the track when the car was still some distance off, proved totally incapable of getting out of the way in time and were literally smashed to death against the front of the projectile-like machine. Rushing along the rails at a speed which, if maintained, would carry it around the world in eight days, the huge car was truly a thing of terror to everything in its path. With every swing of the pendulum, it devoured two hundred feet of distance, and in five seconds—the time it would take a person to notice its coming, and get out of its way—it was good for a full fifth of a mile—four ordinary city blocks.

The electric current for the propulsion of this speed marvel car was supplied by three trolley wires, from which it passed to the two thousand horsepower motors through six bow collectors, used instead of the usual trolley wheel. These collectors, together with the arrangement of the aerial wires, are very well shown in the accompanying illustration. The track was laid with special rails, weighing one hundred pounds to the yard, and was ballasted far more substantially than is common either in steam or electric railway practice.

The tests of the car were made by the famous firm of Siemans & Halske, who supplied the electrical equipment, and were under the direction of German government officials.

Though, as has been said, speeds in excess of one hundred and thirty miles an hour were attained, it was demonstrated that still heavier roadway and equipment would be necessary to render such speeds even reasonably safe. At rates above eighty miles an hour, both the roadway and the rolling stock rapidly deteriorated, and this was what finally terminated the trials. The swaying and vibration became so excessive as to be terrifying when the hundred-mile rate was exceeded, and at the maximum speed attained, every one of the thirty or more passengers realized that his life was in very real danger. Probably the coolest head of the lot was that of the German professor who manipulated the controller, but even he admitted that he paid closer attention to the brake lever than to the means by which a still higher speed might possibly have been reached.

The settling of the rails after several trials was very marked; in fact, it was uecessary to realine the rails before they were in condition to be run upon after the highest speeds attained.

How long it will take the motor car to eclipse the phenomenal record of this rail-carried vehicle is a question, but that the motor car will eclipse it in time is doubted by few who have kept in touch with its speed progress during the past few years.

The absence of rails should prove no bar to high speed. A broad, smooth course, like that of the Ormond-Daytona beach, is even safer than a line of rails, since rails necessitate keeping to a perfectly straight course, any deviation from which must mean certain disaster, whereas a considerable latitude of movement is safe for the rubber-tired space devourer, and does not necessarily involve a danger so serious that it is synonymous with sure death.

Even as it is, the motor car holds all speed records for one hundred miles. A car at the recent Florida meet made the century run in about seventy-eight minutes—faster than any steam or electric locomotive ever has gone the same distance. When it annexes the record for the single mile, which will be when it goes the distance in twenty-second seconds or less, it will hold the speed championship of the world, past doubt or dispute.

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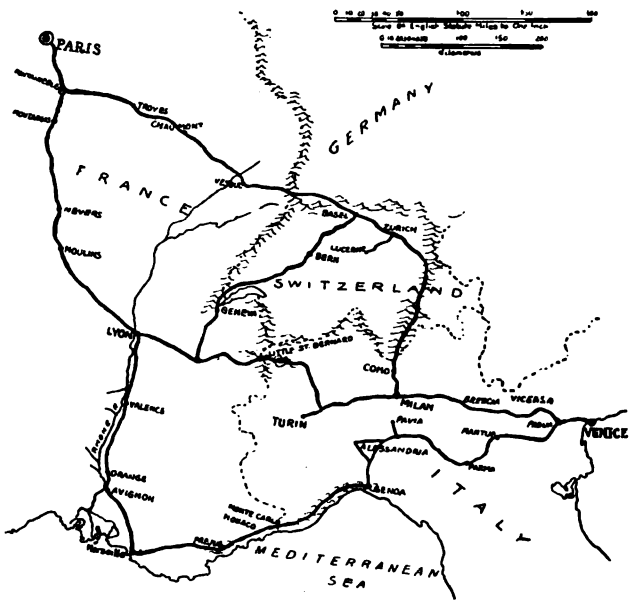
From Paris to Venice and Back

By Monsieur Carbureter



To continue the subject of interesting motor excursions in France and contiguous countries, there is not any more likely to please the eye than the one from Paris to Venice and back, which I shall attempt to describe. Suppose you want to start at Paris, "do" the southeastern part of France, the northern part of Italy—that is to say, old Lombardy—as far as Venice, then with a roundabout cut through Switzerland, return to Paris. Or, with Switzerland out of it, if you prefer, you go by way of Little St. Bernard, Chambéry, and Lyons.

The former makes a delightful trip, and you are all the time within the old empire of Charlemagne. In the eastern and southeastern parts of France you traverse the beautiful Burgundy district and the ancient Roman province, about the mouth of the Rhone and extending over to the Italian frontier. I will trace an itinerary which I know to be practicable, having accomplished all but a few short sections of the route in the near past myself.



From Paris to Villeneuve-Saint-Georges, to Melun, Fontainebleau, Nemours, Montargis, Briarre (on the Loire), Bonny, Cosne, Nevers, Moulins, Roanne, Lyons, Vienne, Valence, Montélimar, Orange, Avignon, Aix-en-Provence, Marseilles, Brignoles, Fréjus, Cannes, Nice, Monaco, Monte Carlo, Menton. Then over the frontier into Italy, to Ventimiglia, Porto Mauricio, Genoa, Alessandria, Tortona, Voghera, Casteggio, Pavia, Placenza (on the Po), Parma, Mantua, Padua, Venice. Back to Milan by way of Verona and Brescia, and then from Milan to Como, cross into Switzerland by Chiasso, and traverse the mountain range by the San Bernardino pass. On to Slügen and Chur, Walenstadt, Zurich, Basel. Into France again and return to Paris by way of Mulhouse (Mühlhausen, in German Alsace), Belfort, Vesoul, Chaumont, Troyes, Sens, Fontainebleau.

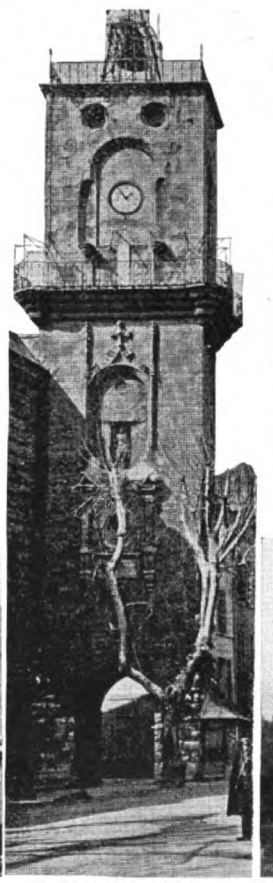
An easier run, however—and shorter, too—would be that of, when reaching Milan on the return from Venice, continuing westward by way of Magenta and Novara, then to Vercelli and St. Germano. A "little road," none too good, leads from here across to Ivrea, but the longer and better one is southwest to Chivasso, then up north to Ivrea. You are soon on a comparatively good road again and en route for the Little St. Bernard pass, that takes you back into France, leaving Switzerland out of the itinerary altogether. Once inside France, you are soon at Bourg Saint Maurice, in the magnificent French Alp district. By way of Moutiers and Albertville, you are soon at Chambéry, and from this place you can easily make the run to Aix-les-Bains, one of the famous early summer resorts. Lyons is close at hand, and thus you can complete the loop and return to Paris by the same road you adopted in starting, if you choose to do so. Or, you can branch off north to Annecy, or even to Geneva, and then cross France toward Paris by the road through Mantua, Bourg, Mâcon and Moulins.

The roads are good in France, indifferent in Italy, and good but hilly in Switzerland. The route takes you through all kinds of country—plains, mountains, and valleys; and your trip is replete with "parts" historically and intrinsically interesting. Your camera will record impressions that will afford you retrospective pleasure the rest of your life.

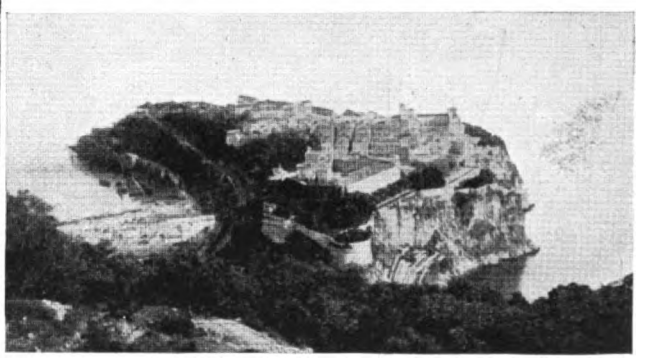
Leaving Paris, you go out by way of Vincennes and take the "grande route" for Fontainebleau. There is nothing particularly remarkable to see until Melun has been passed. Then the country "looks up a little" and affords pretty views of plains and hills until you reach the great forest of Fontainebleau, one of the finest in the world, with really big trees, which are, comparatively speaking, rare in France. The roads all the way are "like the marble top of a table." At Fontainebleau you must visit the château, replete with reminiscences of Napoleon.



PALACE OF THE POPES AT AVIGNON. BUILT BY THE PONTIFFS DURING THE ROMAN PAPAL PERIOD



CLOCK TOWER. AIX-EN-PROVENCE



MONACO. AN INDEPENDENT PRINCIPALITY OVER WHICH THE PRINCE OF MONACO RULES

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ARCH OF TRIUMPH AT ORANGE

Cock your hat up into a three-cornered article, stand on the famous staircase in the courtyard, and imagine you are Napoleon bidding good-bye to the Old Guard in 1814.

The route from Fontainebleau leads you by way of Nemours and Montargis to the little town of Briarre, where you encounter the canal of the same name, and the river Loire. Then to Cosne, Pouilly, La Charité, and Nevers. Nevers is the préfecture of the department of the Nièvre and has a little over 27,000 inhabitants. As important sights, the city offers a palace of justice, vintage of the fifteenth century, a cathedral (Saint Cyr), vintage of a century earlier, and various other interesting buildings. (Hotel de France; dinner 3 francs; rooms from 2 francs upward; with 10 per cent. off if you are a member of the Touring Club de France, and "kick" for the rebate.)

If you haven't already passed a night en route you can do so here. Then you go straight south to Saint Pierre le Moutier, on to Moulins, the préfecture of the department of Allier, with about 23,000 inhabitants. Moulin's attractions comprise a clock tower, a cathedral of the fifteenth century, the tomb of Henri II of Montmorency, and a long bridge over the Allier. (Hotel de Paris and Hotel du Dauphin.)

From Moulins you will proceed to Varennes-sur-Allier (that is to say, on the river Allier), La Palisse, La Pacaudière, Roanne. Roanne is worthy of a visit. In years gone by it was famous for its cotton manufacture, and, as for its "historical interest," it is not wonderful, except that it has been the scene of archæological explorations which have produced Gallo-Roman relics. I almost forgot Moulin's "attractions," too. The only recommendation I can make is that, while passing through the place, you can, if you wish, remember that Catherine de Medicis held an assembly here in 1566, and Henri IV made his entry into the town in 1595. (The exact "spots" are not indicated.)



PANORAMIC VIEW OF TURIN AND THE RIVER PO

From Roanne you have almost a straight road southeast to Lyons; the distance is a little over fifty miles. Lyons, of course, must have considerable attention. Here is where the Saône and the Rhône become one and proceed on to the Mediterranean as the mighty Rhône. From here to Marseilles you will have the Rhône in sight most of the time. The distance from Lyons to Marseilles is about 275 miles by road you follow in your car in easy, interesting stages.

From Lyons you take the left bank (east) of the Rhône, and pass through Vienne, Saint Vallier, Tain (opposite Touron, which should be visited), Valence, Montélimar (home of President Loubet), Pierrelette, Orange, and Avignon.

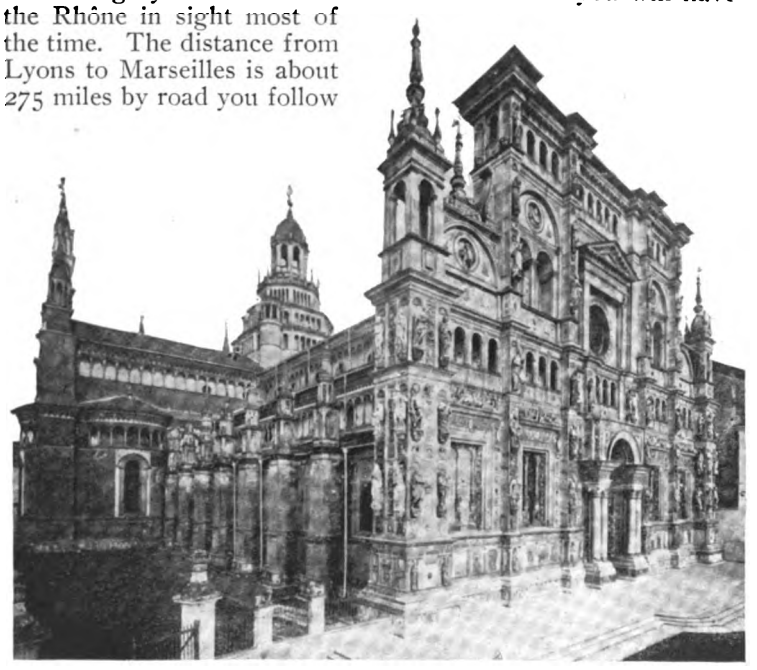
Orange and Avignon are two of the most interesting places in France, giving an idea of the condition of France in this district at the time of the Roman occupation. At Orange may be seen an Arch of Triumph, built by the Romans, according to one authority, at the time of Marcus Aurelius. The Roman theater is another relic of the Roman period.

Avignon is situated in a beautiful country; is favored by fine skies, like those of Italy; gets a few disagreeable puffs of the mistral (north wind) from time to time; has narrow, curious streets, and fine old quays on the Rhône that presents "what has been" in the way of active river commerce. Regarding the mistral, an old Latin diction says: "Avignon venteuse, sans vent empoisonneuse, avec le vent ennuyeuse," which, translated, without rhyme into English, is: "Avignon windy, without a deleterious wind, but with a very annoying wind." The débris of the Palace of the Popes is to be seen, vast and imposing. This was built during the Roman "papal period" at Avignon by the pontiffs, between 1336 and 1370.

From Avignon it will be best to make for Aix-en-Provence, founded by the Romans, B. C. Leaving Avignon, you soon cross the river Durance, and then pass by way of Orgon and Lambesc to Aix. Here you turn a little southwest, and after a run of about 20 miles you arrive at Marseilles.

Marseilles is the "harbor of France," one of the busiest cities in the world, largely on account of its seaport industries. The people of Marseilles, called "les Marseillais," are among the most hospitable people on earth, even though they are commonly supposed to be prevaricators in the thirty-third degree. A Marseillais will calmly invite you to come down to the dock to see a fish that is so big that it blocks the entrance to the harbor.

Marseilles is a great city. It is the New Orleans of France, and, similarly, is built somewhat in crescent forms about the bay. It has a fine climate, not too hot in summer, but, like Avignon and other cities of this region, can't escape from the mistral. It is divided into the "new" and the "old" parts, one of the dividing lines being the famous Cannebière. (The original version



CERTOSA AT PAVIA—REMARKABLE FOR ITS MIXED ARCHITECTURE



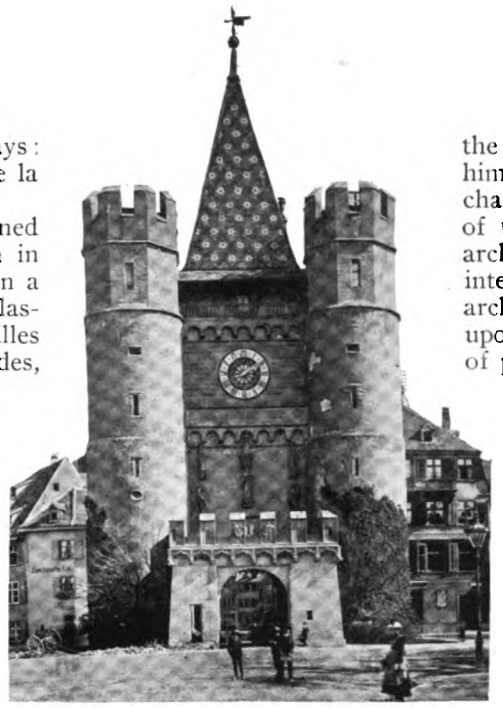
CATHEDRAL AT MILAN—THE LARGEST IN THE WORLD

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of the fish story relates to the native who says: "Venez vite, il y a une sardine qui bouche la Cannebière.")

Many of the Marseillaises are dark-skinned and pretty, and in the old quarters, even in these days, you can discover now and then a pure type, such as a rather dirty girl with classic Greek features—selling fish. Marseilles presents some beautiful buildings, promenades, and monuments, and, in the commercial line, is still in the ring. She has been at the top of the list in chemicals and soap ever since that part of old Provence was bequeathed to Louis XI and the crown of France.

On leaving Marseilles you will do well to take a road which leads you northeast back to the Aix road, and pass to Brignoles and on to Fréjus, on the Mediterranean. Then you have the famous coast road through Cannes, Nice, Monaco, Monte Carlo, and Menton. A description of these Riviera resorts would be superfluous. So will be your cash if you devote much time to Monte Carlo.



CLOCK TOWER AT BASEL

You get into Italy a short distance before Ventimiglia is reached, and after passing through Ventimiglia you continue to follow the coast road through Porto Mauricio, Albenga, and Savona. This route leads you to Genoa, a truly royal and delightful city, in spite of the fact that it's a seaport, with boats, docks, and sailors. Close to the port stands the heroic statue of Columbus, to which you will respectfully take off your hat. Also, in a little side street, in another part of the city, is one of the many houses in Italy in which Columbus was born, or lived at some period of his career. The famous cemetery, situated a mile or two outside Genoa, must be seen. It contains perhaps the most beautifully carved marble sepulchres in the world.

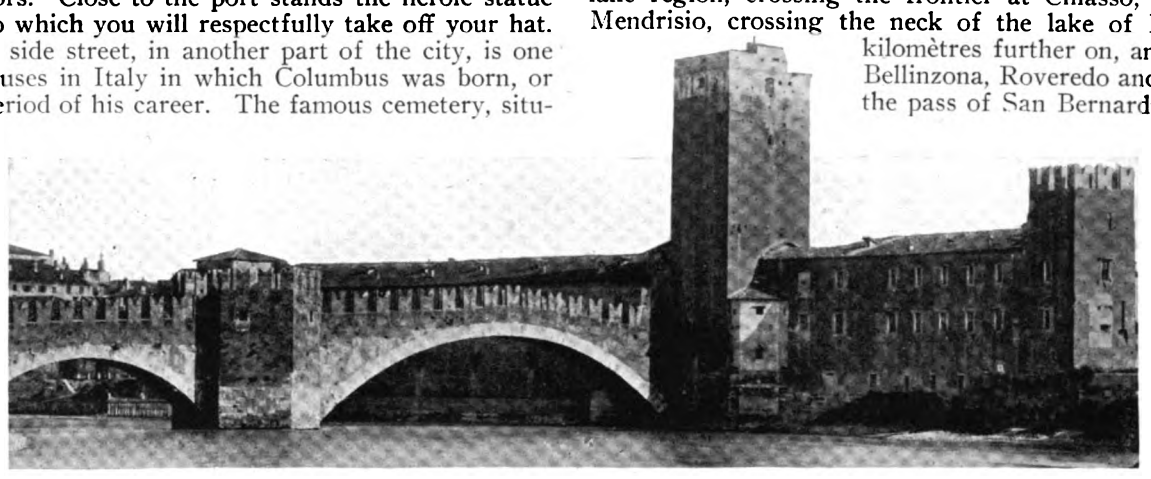
Now for the trip on to Venice! It is a bit tortuous. From Genoa, you had better cut across-country by way of the little cities of Pontedecimo and Nova-Ligure. The important city of Alessandria is now but a few kilomètres off to the left, and you can branch over there or go on to Tortona, which is on the route toward Venice. Next comes Voghera, then Casteggio. Cross the Po if you want to see Pavia, and it will be worth your time to do so. Pavia ("Papia" in the middle ages)is 20 miles from Milan. It was at Pavia that Francois I of France lost the battle to the Imperials in 1525, and, if I remember aright, it was on this occasion that he sent back word to his mother: "All is lost except honor." However, two years later he was avenged by Lautrec, who "got even."

Pavia has a record in history even farther back than that. After vainly trying to check Charlemagne, Desiderius, King of Lombardy, shut himself up in Pavia, his capital, and, after successfully withstanding a year's siege, finally succumbed when Charlemagne returned to the siege with the papal benediction of Pope Adrian I, upon whom the Lombard King had made war. The conqueror, thereupon, not satisfied with mere victory, took from Desiderius the iron crown of Lombardy and proclaimed himself the king of Italy—another link in his chain of conquests. At Pavia, too, stands one of the most remarkable examples of church architecture extant—the Certosa. It is equally interesting to the historian and the student of architecture because of its incongruity of style: upon an ancient basilica has been built a façade of pure classic style.

On leaving Pavia, if you wish to continue toward Venice on the south bank of the Po, you will recross the river and pass through Stradella on your way to Placenza (Piancenza in Italian). Then you are on the road to Parma. After Parma, you can cross over the Po once more and wend your way in the direction of Mantua (Mantova), then on to Padua (Padova) and to Venice (Venezia).

On the road from Venice back to Milan you retrace as far as Padua, this mainly by way of Verona and Brescia, passing Lake di Garda en route. As for details, I am at this moment unable to give them accurately. You had better interview the hotel and the motor-car men, if you must have them.

Now, at Milan, if you do not wish to come back into France by way of Chivasso and Little Saint Bernard—the itinerary to which I have heretofore referred—and if you are disposed to tackle Switzerland, you can proceed to Como in the magnificent lake region, crossing the frontier at Chiasso, go by way of Mendrisio, crossing the neck of the lake of Lugano a few kilomètres further on, and continue via Bellinzona, Roveredo and Mesocco, and the pass of San Bernardino. The road into France via Little Saint Bernard, leads you through Chivasso where you might turn off the route for Turin, and "do" the town where the "T" in FIAT comes from. From Chivasso you go by way of Iyrra, Chatillon through Little Saint Bernard into France. Beyond you pass through Moutiers.



BRIDGE OVER THE ADIGE AT VERONA

In going back into France by Little Saint Bernard, you pass through Moutiers and Albertville to Chambery. Here, instead of continuing on to Lyon, you might turn off northward for Geneva, through Annecy and Bonneville. From this city there is a fine road leading through Aubonne and Lausanne, along the northern shore of Lake Geneva, thence northward by way of Moudon, Morat, to Bern. From here you can return into France by way of Burgdorf, Langenthal, Dünnern Pass, Balsthal to Liestal, which leads you to Basel and the frontier of France.



A GLIMPSE OF LAKE LUGANO IN SWITZERLAND

This route over the Alps, as far as is known, is the same as Charlemagne followed when he suddenly descended upon the Lombard king, who, as I have said before, fell back in confusion and shut himself up in Pavia. But Charlemagne's was not the only army that crawled over the Alps; there is another feat of that kind which holds a place in more recent history. Napoleon, after hearing of the surrender of Massena, started for Italy at the head of 50,000

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TURIN AND THE MODERN SUSPENSION BRIDGE OVER THE PO

men through the difficult Great Saint Bernard, not far from Mount Blanc, and by way of Mt. Saint Gothard, in May, 1800. In November of the same year, Marshall Macdonald crossed the Alps at Splügen Pass, through which the route you will follow runs, with over 15,000 men, thus giving Napoleon reinforcements sufficient to insure victory.

From Chiasso you go on to Slügen and Chur by Zizers and Mayenfeld, following the "little Rhine" a short distance, and go over to Wallenstadt at the end of the lake (Wallen See). Here take a boat to the other end, Wesen, and then by road through Uznach, at the eastern end of Upper Lake Zurich, to Rapperschuyl, at the junction of Lake Zurich and the Upper Lake.

If you wish to devote time to Switzerland, this is where your opportunity commences. To the south and west you have the Alps sleeping with their night caps drawn down over their ears and disturbed only by ardent mountain climbing tourists, the few inhabitants, and the native chamois. Perhaps you would like to travel down in the direction of Lucerne, and the lake of that name, and wander a-motor about Lake Zug and the Lake of the Four Cantons (Lake Lucerne) and tumble uphill and down dale, half-way up mountain sides and down into valleys, the endless succession of which never seem to be reached. To make this, your road leads through the neck of land between Lake Zug and the northeast finger of Lake Lucerne, after which it skirts the shore of the latter lake to the city of the same name. From here, if you wish, you may go back into France by way of Lenzburg and Brugg, thence through Basel, leaving the Rhine, which you have met, and into France.

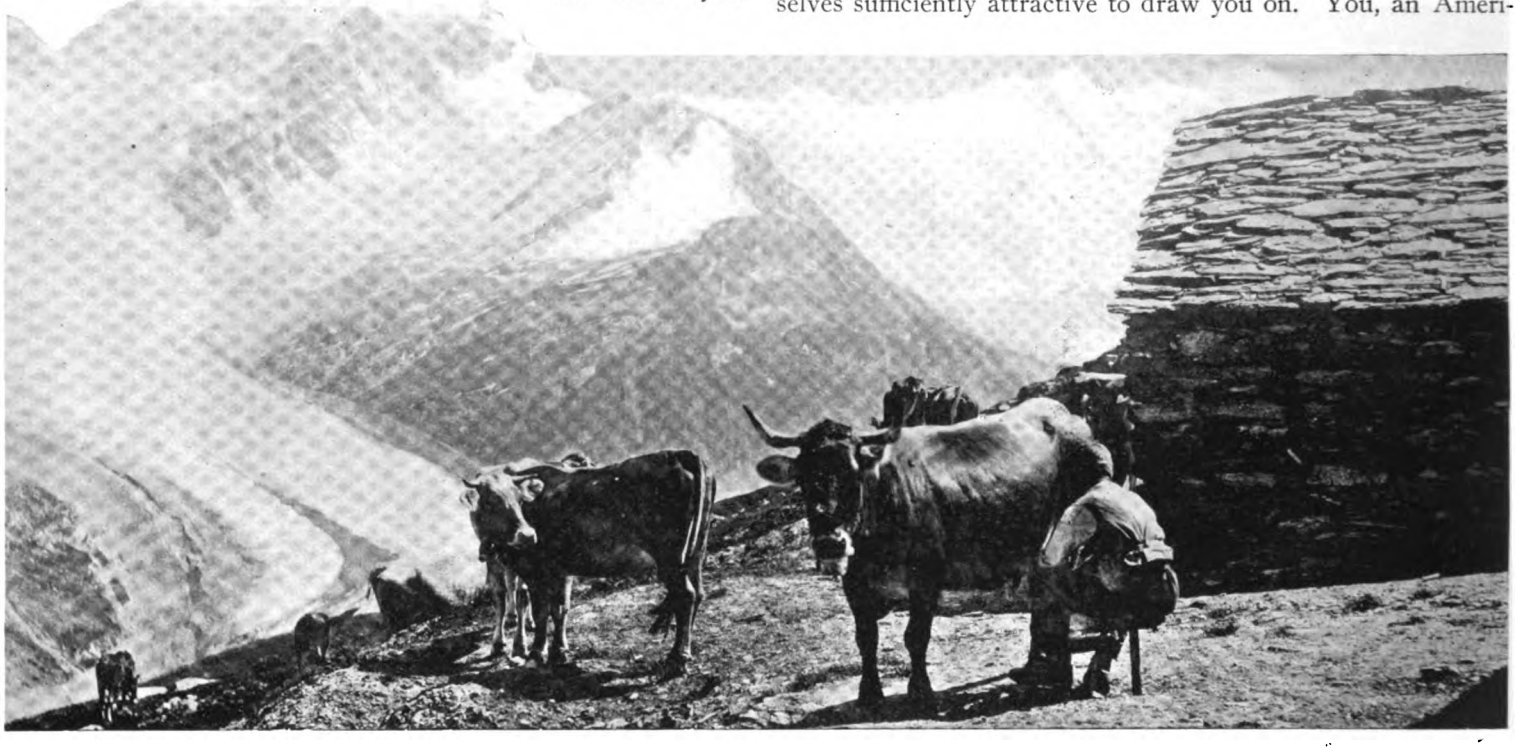
If, however, at Rapperschuyl you decide you do not wish to devote time to Switzerland, pass on out of the country by way of Zurich, along the northeast of Lake Zurich, through Baden and Brugg to Basel, and over the frontier into France. Your road back to Paris is by way of Belfort Vesoul, Chaumont, Troyes (on the Seine), across country to Sens (finely situated on the Yonne), to Moret on the Loing, a resort for artists, and to Fontainebleau, thus completing another loop in the journey. The road back to Paris, the reverse of the one first described, is through Melun and Villeneuve-Saint-Georges.

The entire tour from Paris to Venice and back by way of the longer route through the Alps and Switzerland is in the neighborhood of 2,300 miles, and, according to the time you wish to stop at various places of interest, can be made in a month or stretched to a more comfortable touring time of two to three months.

It is probably as nearly an ideal motoring route as can be made in Europe—a route in which cities and scenes, buildings and "spots" of historic or esthetic interest are plentiful, and a liberal education in the history and architecture of ancient, medieval, and modern south-central Europe.

All along the old Empire of Charlemagne you will find traces —traditional and authentic—of the great emperor's footsteps, and also of the Roman invasion and of history of comparatively modern periods. The fascinating history of this part of the Continent reads like a romance, and "being on the spot" would lend a threefold interest to your tour.

The modern manners and customs of this part of Europe, which have a flavor of the medieval about them, are of themselves sufficiently attractive to draw you on. You, an American, will delight in making mental comparisons between the people you meet with en route and what you have "at home." The tourist who has been through this country will wax enthusiastic to the tourist purposing such a trip, and, in enthou and do ment, say, "Go courage- likewise."



THE "EVENING HORN" AND MORNING MILKING IN SWITZERLAND



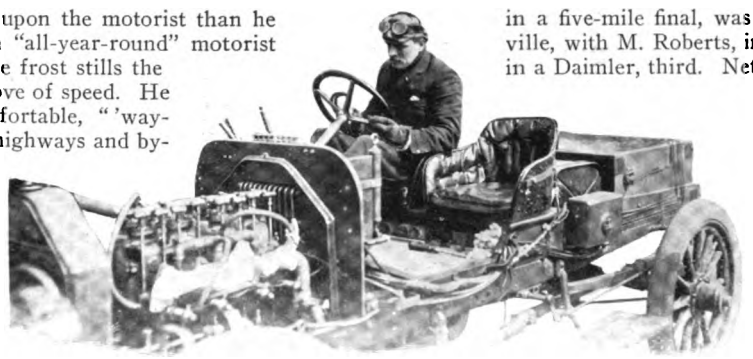
THE "REAL THING" IN SWISS HOUSES

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THE RACING SEASON OPENS

By Herbert Everett

No sooner does Spring lay hands upon the motorist than he becomes speed-mad. He may be an "all-year-round" motorist and delight in winter travel, but while frost stills the earth it also nips the growth of his love of speed. He contents himself then with a comfortable, "'way-under-the-legal-limit" jog along the highways and by-ways he travels. But with the first appearance of greenery along the roadside, something blossoms in him—a kind of intangible, cerebral flower—and he trails the road as fast as his car—and the law—will allow. Neither of which, however (his car or the law), can satisfy him. No somnolent motoring for him; he must have speed—the limit! Moreover, if he cannot "do," he must see. And so the racing season opens and the fun of the game is on.



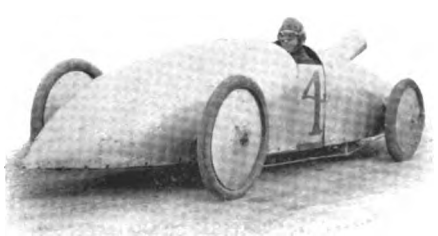
WRIDGWAY, THE THOUSAND MILER

A rather disappointing satisfaction of speed-madness was the races at Brighton Beach race track at far-famed "Coney" on May 6th. No records went by the board—or no, one did, the previous thousand-mile non-stop was sacrificed to the glory of Charles G. Wridgway and a Peerless. The disappointment lay, rather, in the failure of the contestants in the various events on the program of the afternoon to surprise themselves—or the public—by accomplishing more than mediocre performances. The track, of course, its condition, and the perversity of the weather was to a large extent responsible for the dearth of accomplishment. The course is far from being favorable for record-breaking under the best conditions, which is substantiated by the fact that four purposeful record-breakers have come to grief within the ken of modern motor racing—Champion and Wridgway in the past, and Sartori in a FIAT which somersaulted the day before the Brighton Beach meet, while he was making a trial spin around the track, and finally "Joe" Nelson in the *Lightning Bug* (formerly the Ross steamer which "did things" at Ormond), who, while attempting a mile exhibition against time, plunged through the fence. All four of these mishaps occurred at the same place on the course, although not always in the same way.



HOUR AFTER HOUR ALL DAY AND ALL NIGHT. THE PEERLESS NON-STOPPER PASSED THE GRAND STAND IN A CEASELESS GRIND

Scarcely had the Brighton Beach races begun when the sun, which had just somewhat sleepily said good-morning, pulled the clothes over his head and said good-night. He slumbered peacefully until Sunday morning—might have been sleeping till now for all the excitement there was, for what little enthusiasm the spectators brought with them thoroughly chilled in a pall of cold, raw fog which the Old Atlantic cast up on "Coney" for the rest of the day. Bruyère did his motor-cycle stunt first—a two-mile exhibition on a five-horse-power two-wheeler weighing 110 pounds. He did his first mile in 1:11 and his second in 1:17, or two miles in 2:28. The gasoline stock car race, which was run off in mile heats and in a five-mile final, was won by L. A. Mitchell in a Decauville, with M. Roberts, in a Thomas, second, and O. E. Bush, in a Daimler, third. Net result, nothing exciting. Wridgway, the thousand-miler, sent a little wave of enthusiasm through the shivering spectators by doing a two-mile Peerless exhibition in 2:31 3-5. Things began to look up a bit when "Little Joe" in the *Lightning Bug*—a misnomer—came screaming down the track in an effort to shatter the world's steam track record for a mile of 57 seconds. There was a streak of shimmering tin, a tail of steam, the crack of the starter's pistol, and the thing vanished—melted into the fog. All eyes immediately faced the left-hand turn where the "ghost" was expected to appear, and forty seconds later it came to view, crab-like, sidewise, performed a funny little jump, bowled over the fence, and made for the nearest steeplechase barrier in a cloud of steam. A cry of horror went up which turned into a prolonged "ah-h-h-h!" as a figure in silhouette rose in the swirling steam, stepped out of the machine, and, turning, stood for a moment contemplating the thing he had narrowly escaped death in.



THROUGH-THE-FENCE NELSON IN THE "BUG

Guy Vaughan in a "forty" Decauville won the five-mile open and the five-mile race for cars under 1,432 pounds, with E. H. R. Green's Franklin "twenty," driven by W. F. Winchester, second. The five-mile handicap was won by William McIlvoid in a Royal Tourist, with a Daimler and a Cadillac second and third, respectively. Walter Christie was scheduled for a ten-mile exhibition which was intended to take the amateur track records made last year by the late Frank Croker down a peg. The Christie car pounded out five miles in 5:11 1-5 and gave up the effort.

But the bright, particular star event of the Brighton Beach meet was Charles E. Wridgway's Peerless doings. The wonderful performance of Charles Schmidt in a Packard on the Grosse Point track in Detroit last year was eclipsed by 4 hours 3 minutes and 36 seconds. At 9:38 a.m., May 5th, Wridgway started out on his 1000-mile non-stop record run, and 25 hours 50 minutes and 1 second later he finished the last mile, after ceaselessly whirling around the track all day Friday, following a trail of red lanterns Friday night, and grinding out Saturday morning till 11:28 a.m. Only six times during the forty-mile-an-hour juggernauting did he stop the car (not the engine) to stretch his weary, cramped limbs and hastily swallow ham sandwiches and coffee, his only rest and repast during the ride. Wridgway's figure for twenty-four hours was 943 miles and his average per hour was 38 3-5 miles.

The coming racing season promises to be the "swiftest ever." Never

(Continued on page 98)



THE CHRISTIE CAR THAT TRIED BUT DIDN'T

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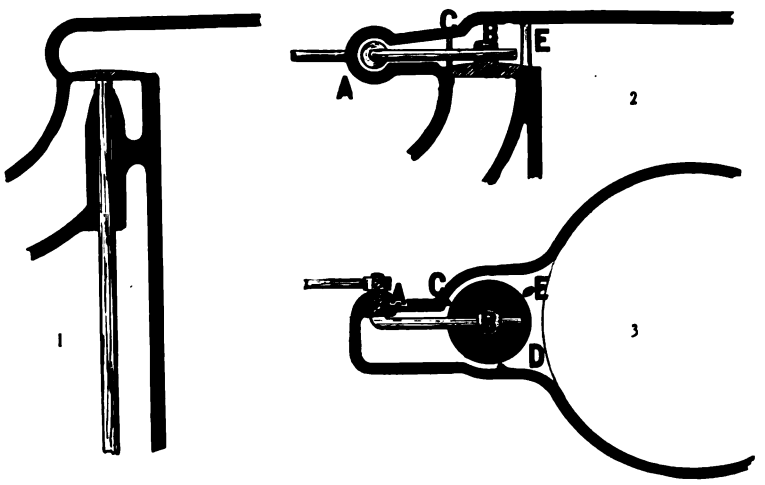
SOLUTIONS OF MOTOR-CAR PROBLEMS

By Igniter

Rocking valve stems, instead of the usual reciprocating type, for the exhaust valves of gasoline engines, constitute as radical an innovation as have been recently proposed in this field of engineering. Their theoretical advantages at least, however, are such as to commend them to the consideration of all who are interested in improving the motor car, and it is not impossible that the future may see thoroughly practical valve constructions embodying this principle.

The proposed construction is compared with that now accepted in the accompanying sketches, in which it is seen that the use of the rocking stem totally avoids one of the most serious objections to exhaust valve stems as now used, which is that they are exceedingly difficult to keep properly lubricated.

It is obvious that, with a rod that reciprocates through the wall of a cylinder or valve chamber, the condition must be involved that surfaces at one moment constituting bearing surfaces, and therefore requiring lubrication, at other moments must be exposed to the exceedingly hot gases within the cylinder. With a rocking stem through the cylinder wall, on the other hand, no such difficulty is encountered. The surfaces exposed to the hot gases are always exposed to the hot gases, and the surfaces that constitute bearing surfaces at no time are subjected to any other conditions of operation. This principle



VALVE STEMS COMPARED

1.—Ordinary Exhaust Valve with Straight Stem. 2.—Side Section of Rocking Valve Stem. 3—Top View of Rocking Valve Stem

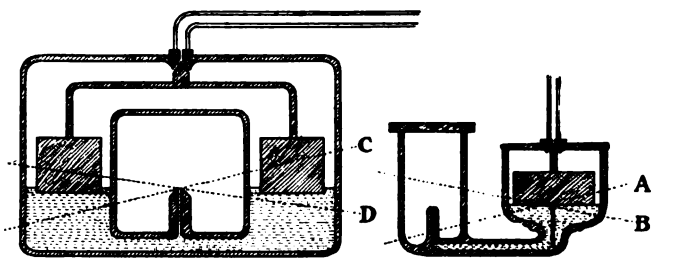
is well recognized in the construction of make-and-break ignition devices, almost all of which have rocking members passing through the cylinder wall, the use of reciprocating contact members being commonly regarded as poor practice.

Any tendency for leakage to occur past a rocking stem is effectively counteracted by the simple expedient of forming a conical collar on the valve stem at the point A, which fits in a countersunk seat in the cylinder wall. Wear thus tends to make the joint even tighter than when new.

The obvious objection to the rocking-valve-stem construction is that there might be some possibility of wear keeping the valve head from centering accurately over the part that it closes. There also might be some trouble experienced in grinding a valve of this sort properly. These difficulties, however, would seem practically solved by some sort of a loose joint between the end of the valve stem and the valve head, as at B. Such a joint could consist simply of a ring made integral with the valve head, and through which the end of the valve stem could pass. This would provide ready means of opening the valve, and would not prevent its proper closing, enough play being permitted so that the valve head could seat itself with absolute precision. This, of course, would involve some sort of guides in the valve chamber—possibly like C, D, and E in the sketch—so that the valve head could neither settle too far to one side of its seat, nor become tilted to any material degree.

For grinding such a valve, it simply would be necessary to have means of holding it perfectly level, as well as of rotating it, so as to insure the surfaces being perfectly true.

Tilting of Carbureters, as a result of hills or sidewise-slanting roads, is a common cause of misfiring. With carbureters in which the atomizing nozzle is off to one side of the float chamber, it is evident that a deviation from a level position may cause the gasoline either to flood, thus producing too rich a mixture, or to drop down so low in the nozzle that a weak mixture is the result. This is shown very clearly in the accompanying sketch, in which the dotted lines A and B show the levels that the fuel assumes under the conditions indicated. In the position indicated by B the left-hand side of the carbureter is too low and flooding occurs; in the other position, denoted by A, with the right-hand side of the carbureter too low, the fuel



HOW TILTING AFFECTS CARBURETERS

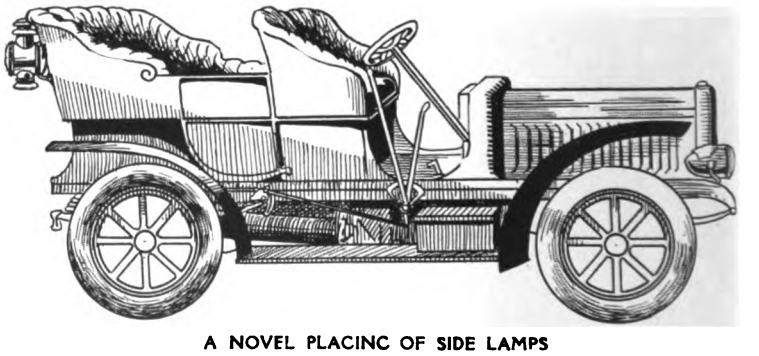
drops so far back into the nozzle that an insufficient charge is inspired by the engine.

Most cars with carbureters of the general type just described, have them placed crosswise, so that longitudinal tilting of the car, as in going up and down hills, does not produce the effect mentioned. Such an arrangement will, however, quickly cause difficulty if the car be run on a sidewise slanted surface. For these reasons, carbureters of the second type shown in the sketch, are by many considered preferable. In this, the dotted lines C and D both cross the tip of the atomizing nozzle, and represent the fuel level when the carbureter is tilted to either side. This being so, it will be readily seen that the fuel is certain always to remain at a fixed height in the nozzle, the annular arrangement of the float chamber, with the nozzle exactly at its center, making it totally impossible for variations in position to affect its work.

While it is not by any means the case that carbureters without an annular float chamber surrounding the nozzle are worthless, it is evident that such carbureters should be very carefully located and adjusted in a car, so as to be subject to a minimum of tilting in the direction that affects them; it also is evident that having the atomizing nozzle as close as possible to the float chamber minimizes the effects of tilting.

Side lamps for motor cars are generally regarded as pretty well standardized both in construction and location. Typical side lamps of accepted design burn kerosene or signal oil, thus constituting a reserve or emergency lamp in case of derangement of the acetylene lamps of the car, and are fastened in pairs to the two upper corners of the dashboard. Probably ninety-nine per cent. of all cars that are provided with the common equipment of two headlights, two side lamps, and a tail light, have the side lamps arranged in this manner.

It has been recently suggested, however, and the suggestion is meeting with the approval the idea seems to merit, that the



A NOVEL PLACINC OF SIDE LAMPS

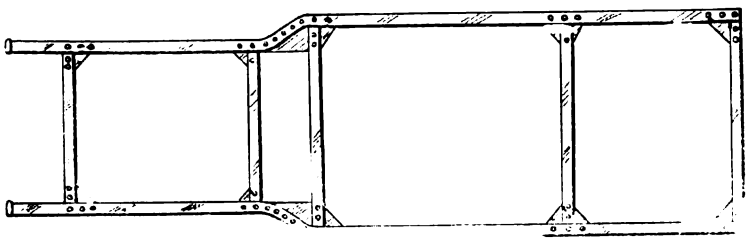
side lamps would be better placed if attached at the back of the car, one on either side of the rear seat, and perhaps well outward and even further back than any other part of the vehicle.

In this position, it is not possible for the side lamps to cast the backward rays that sometimes interfere with the driver's

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clear vision, and there is the additional advantage that the sides of the car are illuminated. This is desirable because it lights up the side doors, operating levers, and other parts of the car, so that the driver and occupants have no occasion to fumble in the darkness while under way, or when mounting or dismounting; and it also makes the car more visible to traffic on cross roads. The sides of the road are shown up even better than by the present arrangement, and the tail lamp may be dispensed with, red or green rear glasses in the side lamps effectively taking its place. A side window at the inside of one or of both lamps will provide ample illumination for the number plate, and will, in fact, make its illumination even more certain than by the present plan, because if one light fails the light from the other can be depended upon.

Cambered frames—the type of frame narrowed from the dashboard forward so as to allow more movement to the steering wheels—are a feature of modern motor-car mechanism

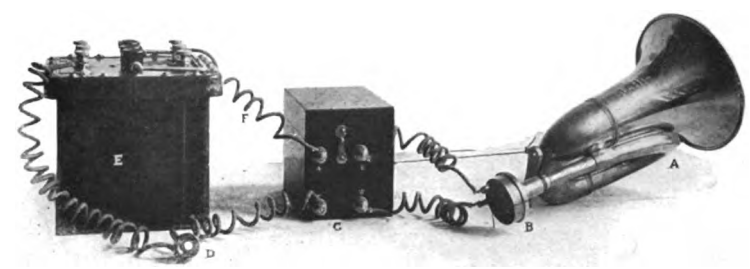


A TYPICAL CAMBERED FRAME

that, though usually regarded as standardized, seems far from a finally satisfactory form. It is most elementary engineering that a beam or girder is stiffer when perfectly straight than when slightly offset, and this fact would appear to make it clear that cambering must introduce weakness that can be compensated for only by the use of an excess of material—always undesirable in a motor car.

Just why frames should be cambered is much of a mystery. It is obvious enough that the frame sills should be fairly close together at the front, between the steering wheels, but why the same spacing should not be maintained clear to the rear of a car is what is not evident. It is obvious enough, also, that the ordinary motor-car body must be wider than the front part of the frame can be, but what good reason is there why the body cannot overhang the frame, thus permitting it to be of any width desired, without involving the more or less objectionable cambering. This plan is followed in at least a few well-made cars, the frames of which have perfectly straight side members, narrow enough throughout their entire length to obviate any necessity for cambering, while the body is very neatly designed so as to be wider than the frame. The sound practice of placing the rear springs at the ends of the axles, near the wheels, is nowise affected by the narrowing, the simple expedient of having projecting cross members or rods, considerably longer than the frame is wide, being followed. To the ends of these rods the springs are attached, by shackles or otherwise.

The electric horn, in which a vibrating diaphragm is substituted for the more common reed, worked by a blast of air, is a new and decided novelty in signaling devices for motor cars. As shown in the accompanying illustration, the base of the horn, A, is provided with a cylindrical box, B, in which the diaphragm is held. Behind the diaphragm is a small magnet,



THE ELECTRIC HORN

A—Horn. B—Diaphragm Box; C - Vibrator; D—Button; E Battery

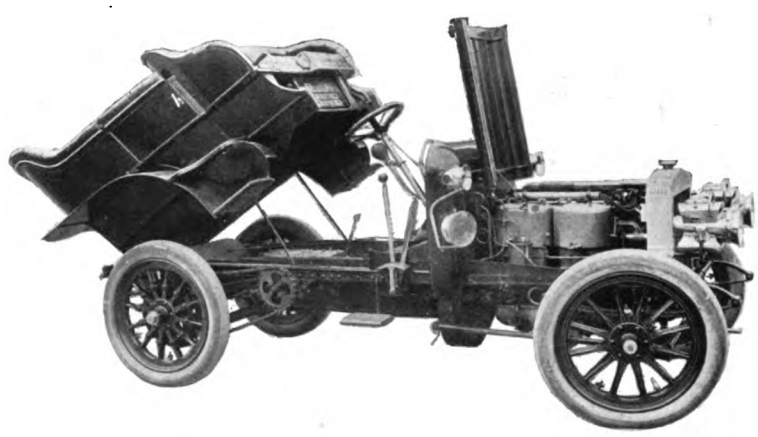
the whole arrangement being similar to that of a telephone receiver, or a phonograph reproducer. Instead, however, of the vibrations of the diaphragm being controlled by a transmitter, or a sound record, they are controlled by a powerful vibrator, mounted with its coil in the box C. A storage cell E, or any suitable source of electric current—the one that is used for the ignition system serving very well—provides the current, and it suffices to press the button D to produce a loud, strident, and penetrating blast that can be heard for a long distance. Any number of buttons can be arranged in the circuit, so that the horn can be "blown" from any part of the car.

The tone of the blast can be varied by adjusting the vibrator, the number of vibrations to the second of course determining the musical note that is emitted.

It is obvious that this electric horn is much easier operated than one of the air-blast type, and that it is practically the only horn that can be conveniently arranged to be sounded from different parts of the vehicle. One button may be mounted on the steering wheel, another where it can be pressed by the foot, and others within convenient reach of other occupants of the car.

Accessibility in motor-car construction is commendably advanced in the English car pictured herewith. In this car, access to the motor is provided in much the usual manner by a bonnet that is hinged to the dash, but the sides of the bonnet fold up in such manner that the whole arrangement is much more compact than those usually seen. In addition to this, the body, from the footboard back, is hinged to the rear of the chassis, and may be tilted back in such a way as to expose the change-speed gear and the countershaft, and other portions of the transmissions. The clutch is reached in the usual manner by removing the footboard, and the whole car thus is made peculiarly accessible for roadside inspection or repairs.

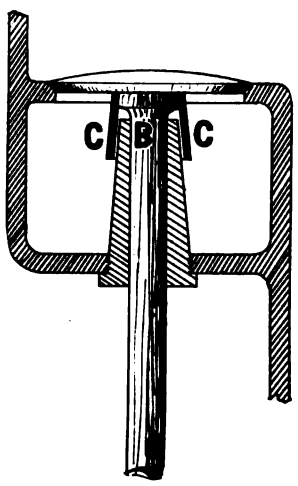
There is no question but what the matter of accessibility has been much neglected in the past, even to an extent for which



AN IMPROVEMENT IN ACCESSIBILITY

there has been no excuse. There is no good reason, for instance, why almost any car of standard design should not, with slight modification, be made so that the body could be tilted up as in the case of the car pictured herewith. Undoubtedly, the next few years will see much progress made in this direction.

Protected valve stems, such as the one sketched herewith, show an ingenious effort to avoid the common trouble of exhaust-valve heads burning loose from their stems. In the ordinary type of exhaust valve, there is a powerful blast of exceedingly hot gases directed against the valve stem during the moments the valve is open, and this blast produces two highly objectionable results. One is the vaporizing of the lubricant that is carried up from its bearing by the valve stem, and the other is the gradual burning or pitting of the stem, that ends by weakening it so that it breaks. In the improvement shown herewith, a thimble-like tube of sheet metal, C C, it attached to the under side of the valve head, and extends down in such manner that it almost completely protects the exposed portion of the valve stem, B. There is, of course, a small annular opening at the bottom of the thimble into which the hot exhaust gases can penetrate, but the amount of these is so small that their effect is very much less than that of the free current of heated gases which does the injury to the ordinary type of valve.



A PROTECTED VALVE STEM

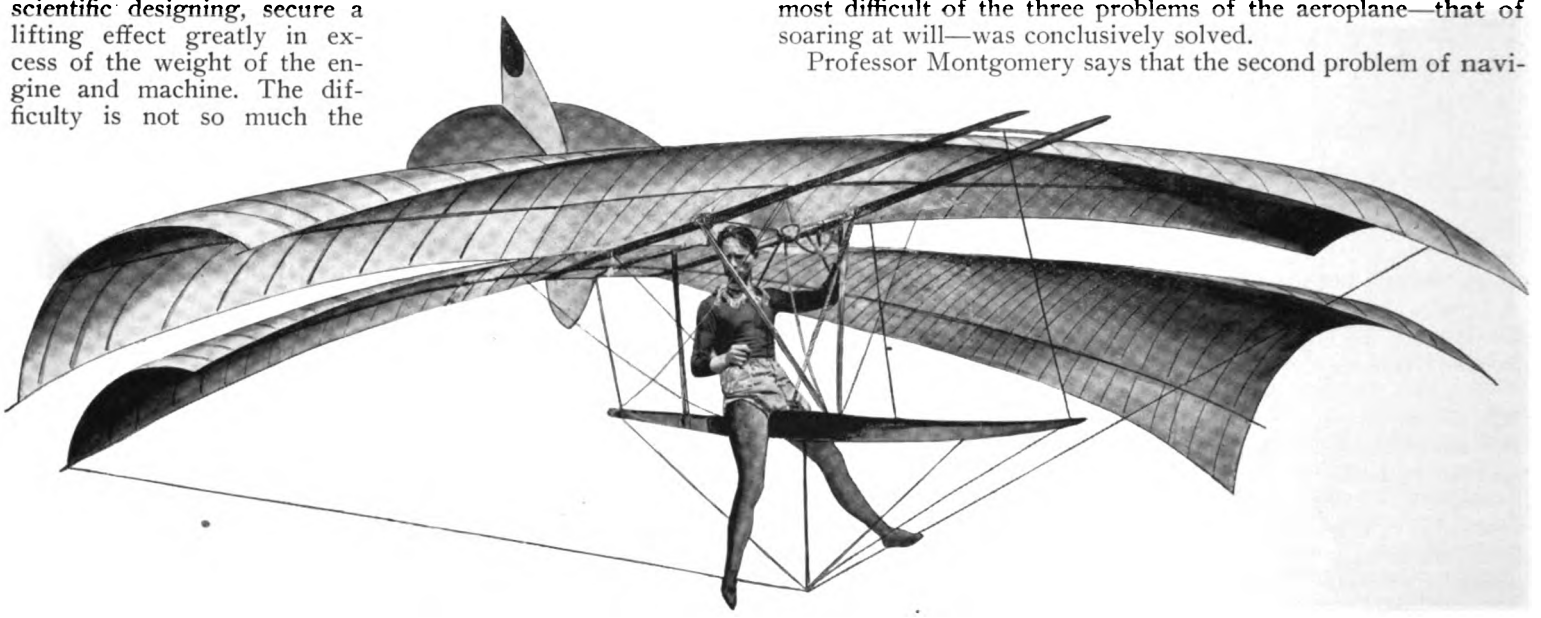
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A FLYING MACHINE THAT FLIES

By Thomas Nunan

There is many a skeptic concerning the practicability of aerial navigation, even among engineers who are noted for anything but conservatism. But the hardiest skeptic would have been converted had he seen the truly remarkable trial of the Montgomery aeroplane at Santa Clara, Cal., April 29.

It long has been recognized by inventors that the chief problem of aerial navigation is that of incorporating in a machine such balance and reliability as will insure its safety. A balloon, despite the highly spectacular results that have been obtained with gas bags of various forms, is an evasion rather than a solution of the great problem, and the difficulty with the machine "heavier than air" always has been the practical impossibility of rendering it stable. It is simple enough to attach a propeller to an aeroplane device, and, with any sort of scientific designing, secure a lifting effect greatly in excess of the weight of the engine and machine. The difficulty is not so much the matter of getting up in the air, as it is a matter of staying there right side up. This was excellently exemplified in the recent failures of the large Langley aeroplane over the Potomac River, though a previous model on about the same design, but smaller and apparently better balanced, once flew three-quarters of a mile without trouble.



A VIEW OF THE MONTGOMERY MACHINE AS IT APPEARS IN THE AIR

The Montgomery aeroplane consists primarily of two silken wings, 24 feet long and 6 feet wide, stretched over a framework of hickory and piano wire. These wings are placed parallel, instead of end to end, and, in addition to the wings, which are curved on their under sides, there is a rudder, arranged to act both in horizontal and vertical directions. The weight of the whole affair is but 42 pounds, and the nerve of the professional aeronaut, Daniel Maloney, who, seated on this seemingly flimsy apparatus, launched himself from a balloon at an altitude of 4,000 feet above the earth's surface, was as remarkable as the success that attended the apparently hazardous attempt.

To John J. Montgomery, who is a professor at Santa Clara College, and who designed the remarkable craft, undoubtedly belongs the credit of constructing the first aeroplane that has proved itself capable of carrying a human operator, possessed of perfect equilibrium, and susceptible of guidance at will, regardless of the aerial conditions.

The trial on April 29 was a sequel to a number of private trials that had been conducted only in the presence of the inventor, the aeronaut, and a few others. But on the occasion referred to there were many invited guests and spectators, who were unanimously agreed that human flight, or, more properly, soaring, had finally been accomplished.

The balloon used for lifting the aeroplane was an ordinary hot-air balloon, such as are stock in trade of the parachute-jumpers at country fairs. The aeroplane was attached to it by a cable, much in the manner of the professional parachute-jumper's equipment. The height attained before cutting loose was about 4,000 feet, as closely as could be estimated, and, after an initial drop of a few feet, the aeroplane settled to leisurely floating through the air, in the manner of a great soaring bird. It circled about at the will of the operator, maneuvered to right and to left many times, and on several occasions made long downward swoops terminating with shorter upward sweeps, by movement on an upward incline, in the teeth of the light wind that was blowing. It was impossible, of course, to rise higher than the altitude of 4,000 feet from which the start was made, but what Professor Montgomery considers the first and most difficult of the three problems of the aeroplane—that of soaring at will—was conclusively solved.

Professor Montgomery says that the second problem of navigation is that of finding means for continuing the initial flight without the necessity for constantly descending, to secure horizontal advance. This, he believes, is more likely to be solved by the use of propellers, driven by a gasoline engine, to give the machine horizontal velocity and thus do away with the necessity for starting it at a greater elevation than it is desired to reach. The third problem he considers to be that of rising from the ground, which, he says, it will be time enough to solve after the right motor is made to propel the right wings in the right manner.

Maloney, the truly intrepid aeronaut, who, as a professional balloonist, is known to fame as Professor Laselles, says that he never before experienced such sensations in the air, his flight being far more thrilling than any possible trip in a balloon or with a parachute. "It was being a bird!" was his declaration. "I was on wings, and flying! I was the first man ever to succeed in the attempt, and the first man to begin the attempt at a height of 4,000 feet. If flying-machines ever come into general use, they will afford the most thrilling sport in the history of the world."



AFTER THE LANDING

Before the trial, Professor Montgomery instructed Maloney to land at a certain point, southeast of the college grounds, and it was a notable indication of the perfect control of the device that the landing was made exactly at the predetermined point. Maloney was not even jarred as his feet struck the ground, the final stage of his descent being accomplished in a long, horizontal flight, with the machine close to the ground for a considerable distance before the landing was effected.

The total surface of the two wings of the machine is only 185 square feet, so in no sense did the apparatus act as a mere parachute, the principle of its construction being solely that of the

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gliding aeroplane, which, by moving horizontally at great speed, secures a sufficient support from the air beneath it to keep it from falling.

From the success of the Montgomery experiment, the practicability of the aeroplane as a contrivance operated by gravity and the sustaining effect of air currents, and controlled by man, can be no longer questioned. It remains only to adapt it to motor propulsion, and perhaps still further increase its stability and reliability, to produce a highly practical flying-machine.

It is interesting to note that previous to the trials of the Montgomery craft, other inventors had sought similar results with similar apparatus, though with no degree of success. The Langley experiments still are fresh in the public mind, and it is a matter only of a few years ago when a venturesome inventor made all his preparations and declared his intention of launching himself from the summit of Pike's Peak on an aeroplane of his own designing. His courage failed him at the last moment, however, and the flight was called off. So it has remained for Daniel Maloney and Professor Montgomery to accomplish what is unquestionably the greatest single advance ever effected in the history of aerial navigation.

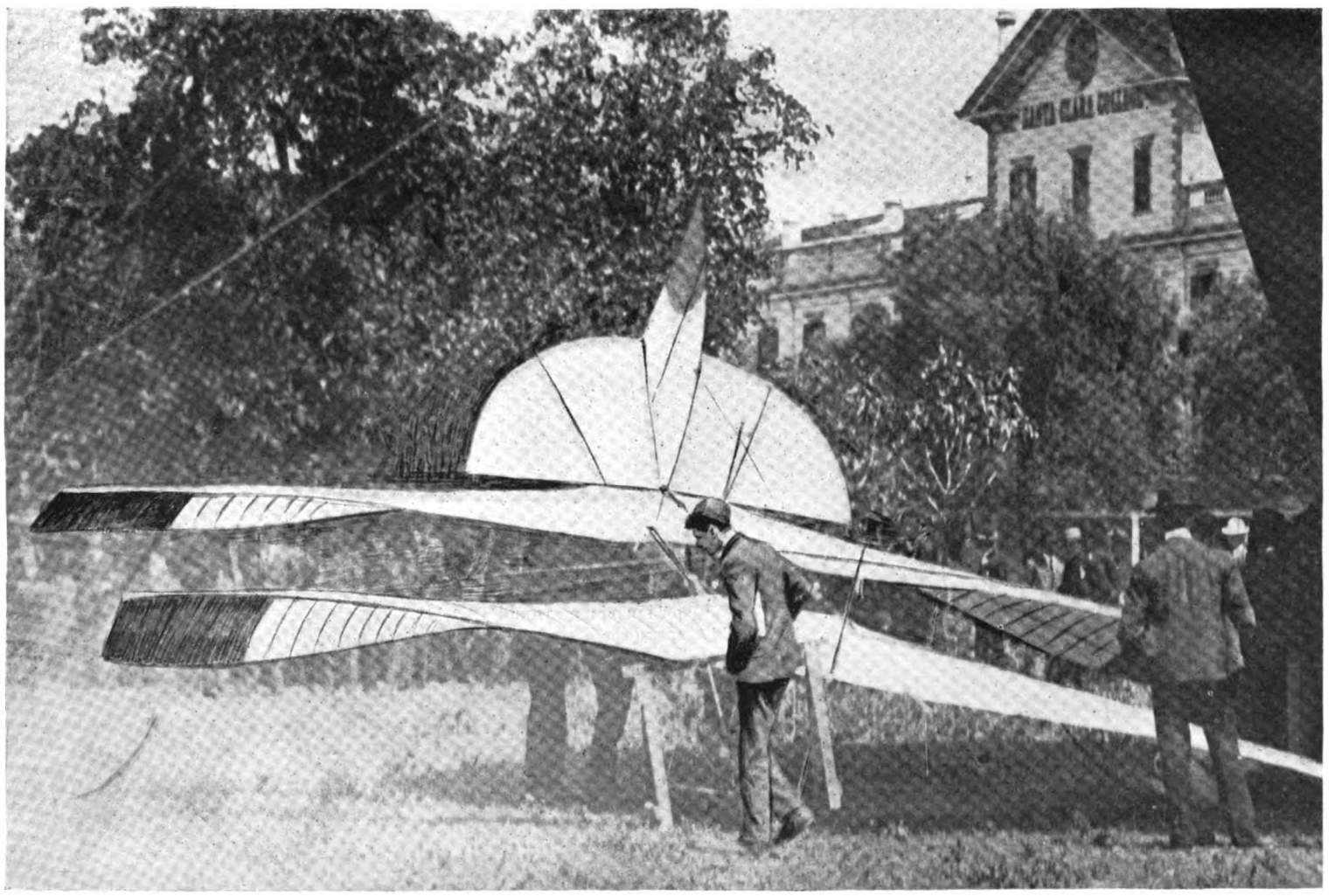


DANIEL MALONEY

Experiments of the Santos Dumont and Baldwin order, though interesting from several standpoints, and not wholly without a degree of utility, by no means present as practical prospects as are given by the aeroplane line of development. A balloon filled with the lightest gas known, or even containing a vacuum—not a practical idea, but the limit of theoretical possibilties in this direction—can, under no circumstances, possess a lifting capacity greater than the weight of the air it displaces. This makes it necessary for all balloons to be very bulky, and consequently of small strength, and, if motor-driven, of little power, in proportion to their size. For these reasons, the limits to balloon speed and safety are clearly defined, and it is a question whether the best dirigible balloon ever built will be strong enough to withstand the buffeting of rough weather, or powerfully-engined enough to make headway in the teeth of a gale. Even if the engines carried were powerful enough to produce high speed, the strength of the envelope would set an immediate limit to the rate of progress that might with safety be attempted. And, since to strengthen the envelope would increase the weight, which, in turn, would involve more gas to lift the machine, it is easy to see that a frail construction is as essential to successful flight as it is dangerous to safe flight.

With an aeroplane, totally different conditions prevail. An aeroplane is sustained in the atmosphere not by a buoyancy due to its weight being less than that of an equal cubic quantity of air, but by presenting approximately flat surfaces to the air beneath them, new air being reached by onward movement faster than any tendency to settle can act. In this respect, an aeroplane acts like a skater going over thin ice, which would break if he stopped, but as long as he moves rapidly will hold him up. In the case of the Montgomery machine, which weighed forty-two pounds, the total weight, including the aeronaut, who weighed about one hundred and fifty pounds, was one hundred and ninety-two pounds. This weight was carried by wings totaling one hundred and eighty-five square feet in area, so the supporting capacity was about one pound to the square foot. This supporting capacity is sufficient to permit of very stout construction, and the promise of the aeroplane is that even greater weights can be carried by it when it is driven at higher speeds by motor propulsion.

It is evident then that Professor Montgomery's successful experiment is conclusive proof of the correctness of the aeroplane theory of aerial navigation. The final summing up of the various points which the demonstration disclosed will no doubt bring from the California professor a flying machine that not only will fly but also one that, having a motor, will navigate at the will of the operator. The dirigible balloon, successful now so far as its ultimate possibilities are concerned, is nothing more than a show piece. Circus solutions of the indubitably puzzling difficulties of flying through the air can never succeed. Great bulk, its lack of carrying capacity, and its many other disadvantages put it out of the running as a solution for aerial navigation. Daniel Maloney's courage in the face of so many and repeated failures—and tragedies—to solve the problem is worthy of the highest praise and commendation. His wide experience as an aeronautist no doubt served to steady his nerve, and helped to make the Montgomery machine a success. It is to be hoped that when he tries a new Montgomery flying machine he will not only be enabled to soar, but also to fly whither his inclination wills. Aerial navigation is certain to be solved by the aeroplane. Why should not Professor Montgomery's next be the solution? He is on the right track now.



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THE MOTOR PICNIC

By Grace Margaret Gould



Courtesy of Scandinavian Fur Co.

A JAUNTY MOTOR CAP

Surely the influence of the motor car is far reaching. Now it is the old-fashioned picnic which is caught up in its whirling way and given a new-fashioned touch.

Motor picnics, this summer, are to be all the go. They are to be the pet diversion of her Motor Ladyship. With the coming of June, the motor girl longs to spend whole days out in the open, basking in the warmth of the sunshine and breathing in the freshness of the blossom-perfumed air. And what she longs for she generally quickly obtains. So one finds her steering her motor car over hill and dale, and letting the breezes paint roses on her bonnie cheeks.

Early in the spring it was all very well to stop at a hotel or clubhouse for luncheon, but now the motor girl glories in spreading her lunch on a flat rock, which perhaps she has had a hunt to discover, or to use the soft green grass as her table. And so she gives a motor picnic! A touring car may be used, and the lucky girls and men invited may all be packed into the big car, or, if the picnic is to be a large one, runabouts just built for two may be used.

The motor girl, planning her picnic, will quickly discover that everything seems to work together for its success. This is specially illustrated in the new motor hampers, which truly have a suggestion of Aladdin's Lamp about them. So complete are they, that,

You may have things hot,
You may have things cold;
In fact, about any edible that's
cooked, bought, or sold.

There is no doubt they are a far cry from the old-time lunch basket, which, no matter how carefully packed, was pretty apt to reveal—when the destination was reached—a too close acquaintance between the salad dressing and the jam, or the pickles and the butter. Motor hampers can be purchased in wicker or leather, and come in varying shapes, and at equally varying prices. They are built on the plan of "a place for everything, and everything in its place." Some are made with a refrigerator compartment, as well as a place in which to fit the alcohol lamp, and they contain plates, cups, saucers, glasses, forks, knives, spoons, and a bottle or two. There are also places in which special, covered dishes are fitted, so that they are held secure en route.

Since the door of the newest motor car now opens on the side of the tonneau instead of at the back, the big motor hampers are firmly attached to the rear of the motor car with straps, or packed away on the floor of the car. The hampers with the refrigerator compartment are among those most in favor, for in this way a small bottle or two may be kept as cold as one likes.

Many of the hampers are made in tiers, the lowest tier being packed with ice, the next containing the lunch, while the two upper tiers are for the dishes, glasses, silver, etc.

Of course sandwiches must be packed in the hamper, for what would a picnic be without sandwiches? A new sandwich worth trying is made of brown bread, the filling consisting of a thin slice of cucumber, which has been dipped in a French dressing and then drained. Another good brown-bread sandwich is spread with cream cheese and a slice of dill pickle. Chopped olives may be substituted for the dill pickle if one so prefers. Everyone is sure to like the well-made lettuce sandwich, and sandwiches spread with orange marmalade are also tempting to the hungry motorist who likes a taste of something sweet. Stuffed eggs never come amiss at a picnic, and those which are the most appetizing are filled with the yolk of the egg, well mixed with mayonnaise dressing and chopped pickle, and seasoned with pepper and salt, with just a trifle of Worcestershire. An unusual morsel for the motoring picnic lunch is a celery stalk filled with a mixture of cheese. Camembert, Roquefort, and cream cheese are pounded in a mortar with just sufficient sherry wine to make the mixture of the correct consistency. This is then used as a filling for crisp celery stalks. As something a bit out of the ordinary, it is to be recommended.

Rhine wine for the cold bottle is pretty sure not to come amiss, and a well-made tea punch with a good flavoring of Jamaica rum can stand on its own merits.

The hostess of the motor picnic is very particular about her lunch, but if she is a wise woman, she will not forget that she is giving a picnic, and not a formal course luncheon.

In her invitations she can introduce a touch of novelty if she wishes. She can easily cut out of water-color paper miniature motor hampers, which she can paint brown, to represent leather. The hamper may be so cut that the top will lift up, and underneath the flap the invitation may be written. If she prefers something more elaborate in the way of an invitation, she may send to each of the women guests a candy box in the shape of a little motor car, and have tied to the lever the invitation in a bit of an envelope. The men's invitations may be sent in the same unique way, only that, instead of the little motor cars being candy boxes, they are made to hold cigarettes and a lighter.

The question of what to wear for motoring is always an important one, but never more so than when her Motoring Ladyship must decide on a costume suitable not only for the motor ride, but for a day in the country tramping about the woods. The skirt and coat costumes of Danish kidskin are about the most practical for wear at a motor picnic. These good-looking suits, with their short skirts and jaunty jackets, now come in a variety of becoming colors. In dark green they are specially effective.

Long coats of silk rubber made with a tight-fitting back and a loose front are also useful. Nowadays these coats are made up most attractively with inlaid velvet in a contrasting color introduced on the cuffs and collar. The buttons are also ornamental and add much to the expense of the garment. For picnic wear, the motor girl may don a pongee cap or one made of fine Milan straw, with a detachable curtain. Riding to and from the picnic, the curtain will be invaluable, as it effectually protects her hair from the dust. And the cap without the curtain is just the most comfortable thing imaginable to wear on one's head all day when picnicking.

A long scarf veil and a hair net will also be found most useful accessories to the motor girl's costume when off a-picnicking she goes. The best veils are of barege or crêpe chiffon, and those which are shaded are much liked. Many young women embroider their monogram on one corner of the broad hem.

When a motor picnic is being planned, it may be of interest to know that there are not only vanity cases, these days, for the motor girl, but for the motor car itself. Attached to the inside of the car of many of the big French machines are leather cases containing enough toilet accessories to delight the heart of any motor girl. These cases contain not only the usual mirror, puff and powder boxes, brush and comb, but an alcohol lamp, a curling iron, a jar of cold cream, a filled silver hat pin case, a cube of pins of all sizes, and a veil case which is large enough to hold an extra handkerchief or two. Every motor girl feels that after a run a little primping would mend the disarray of her charms. Besides the vanity case there are all sorts of little conveniences for the motor girl which would take pages and pages to tell about, but which are really essential to her Motor Ladyship's welfare and comfort while touring in her motor car.



A WICKER MOTOR HAMPER IN USE



Courtesy of Saks & Company

A PIGSKIN MOTOR HAMPER

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THE SOCIETY FOLK WHO MOTOR

By Priscilla Speedwell

The memoranda of the motorist treat now of that which is modern, American, and sporty, Southern Europe and romantic travel in Italy and Spain has now been superseded by talk of good times on Long Island. All the country homes are opened. Even Bourke Cockran is wearing his softest felt hat. To adorn Long Island soil, the easy, informal, good old summer time has brought the flower of society as well as the blossoms on the fruit trees and bushes. Mr. Oliver H. P. Belmont, who is wearing an olive-green hat as a reminder of his first name, travels over the roads with his wife, or rather his "mother of the Duchess of Marlborough," in a fine car with glass sides and top. Even the dowager Mrs. Cornelius Vanderbilt, in the most perishable of Parisian frills, made the journey by motor to Belmont Park on the opening day. Mrs. James W. Gerard, Jr., in pale blue and white gala attire, was with her. Mayor McClellan and his bright little wife, who was Georgianna Heckscher, descended from Stephen Whitney, one of the old Admirals of Industry, motored from Garden City to Belmont Park on the first day in their large touring car, which is one of the best that travel on Long Island roads. Both Mr. Clarence W. Dolan—devoted to his Rochet-Schneider, though he spends his winters at motorless Aiken—and Yale Dolan, who has a Mercedes, were among the Philadelphians who traveled to the track in their cars. Mr. A. G. Vanderbilt was not the host on the road coach, "Venture," but the slim Monson Morris had as his guests the pretty girls, including Alice Roosevelt and Natica Rives. Mr. Vanderbilt drove his FIAT. Peter Collier, Master-of-Hounds, also arrived in a motor (Decauville). Mr. Hugh Grant, who does everything by motor (sends his children to school every day in a motor), came down to the track in a Renault and was soon recognized among the political celebrities on the lawn.

From the veranda at the side of the clubhouse, ladies could see the line of motor cars quickly growing longer and broader. There would be a little shriek at times when some chauffeur would attempt a too swift and sensational entry. The roads from Long Island City were dusty, but there is a rubber protection for the prettiest frills, so the girls who came down in motor cars were brighter than those on the coaches. The journey was less tiresome because more quickly made. Long motor veils, when the maids shook them out in the dressing-rooms, gave forth a cloud of dust.

William K. Vanderbilt, Jr., true to his hobby, drove down in his 60-horsepower Mercedes, and Harry Payne Whitney—whose fascinating wife was in a box with her young sister, Gladys, each much like the other because of their heavy black eyebrows—arrived in his 40-horsepower Leon Bolle. William P. Grace, the Long Island huntsman, whose pretty cousin, Mrs. Jay Phipps (one of "The Three Graces"), was a belle at Mrs. Mackay's dance that night, arrived at the track in his Rochet-Schneider. Another good huntsman who arrived in his motor car was W. Gould Brokaw, who will soon have a chatelaine (he is engaged to Miss Clare Howard) at his fine country home. Even "Heiny" Conried must have come down by motor, for it was noticed that the ladies in his party had on the latest motor-car frills. And "Wie oh! Weh, der Heiny, er war aber sporty." He was no longer the impresario, but a jolly, up-to-date sport. The opera-house Heiny has hair just the least bit long. But Heiny's hair on May fourth was cropped as close as possible. He had on a jaunty little derby much sportier than Ollie Belmont's olive-green Fedora, and Bourke Cockran's slouch hat. His field glass was slung over his shoulder, his gray suit as close fitting as his plumpness allowed, and a long, black cigar. Alles war gemütlich. But Heiny at the races is a dapper little sport. He didn't once go over and talk to Nordica, who had a seat down in the boxes with the wife of John E. Cowdin, the polo player (and a sister of Robert Bacon, who, as a bit of motor news, en passant, returned some weeks ago from his trip abroad). Heiny didn't need to worry about Nordica, for fear the terrible wind that blew over the stand and track might cause harm to her gold-lined throat. The winds, indeed, blew chill and cold. The morning was warm, but the only heat of the afternoon was the dead heat run by "Sysonby" and "Race King." Then the mercury suddenly dropped. All the pretty motorists had red noses; even beautiful Mrs. William G. Roelker's was a little bit pink. With Mr. Roelker, this beautiful daughter of the Couderts (once the wife of W. Gould Brokaw), came down in a big motor car. All in dark blue, with a blue silk cloak over her gown, and pink roses in her small blue hat, she was decidedly the trimmest and prettiest of the motoring madames.



(Photograph by Campbell Studio Rudolf Eickemeyer, Jr., Manager)

MRS. E. R. THOMAS

Mrs. Thomas, who was Miss Linda Lee, of Kentucky, has all the love for sport characteristic of "the Blue Grass State." She is one of the most beautiful among the women who compose the feminine contingent at motor races. In Mrs. Clarence Mackay she has one of her closest friends.

* * *

Alfred Seligman will make a journey "by Mercedes" all the way from his Fifth Avenue residence to the little lake in Maine where he spends his summers among the most primitive New Englanders. But to relieve the primitiveness, he has as neighbors the family of Douglas Volk, the artist, who recently placed a large symbolic painting in the State Capitol at Minneapolis. For his motor trips in Maine Mr. Seligman will have as companions young Wendell Volk and Gérôme Volk, the latter named after his father's great friend and master, the French artist. In this Maine locality, where Mr. Seligman is revered as a rajah, Mrs. Volk started the now well-known industry of Sabitos rug-making, where from the wool on the sheep's back and the work done by the Maine natives, she watches the progress of the weaving. These natives, who have learned to do weaving like that of the Indians, have never seen a motor car, and young Gérôme awaits with glee the amazement and terror that will be caused by Mr. Seligman's car. Mr. Seligman, who is a brother of Isaac Seligman, is more devoted to "sculpting" than to motoring, but modeling is an indoor pleasure purely, and in summer he spends much time in his car. A bust of Lincoln, modeled by Mr. Seligman, was presented to the Lincoln Memorial University in Tennesee in May. Mr. Seligman rose to first rank in his art in spite of being hampered by incentive-killing millions.

* * *

But there are still romantic motorists abroad. There are some roads that do not lead to the race course. "The Carrolls of Carrollton," after they left Monte Carlo, proposed to make a motor tour of Spain. Mr. and Mrs. Charles Carroll have an especial love of the land of the Alhambra, and Mrs. Carroll, who was Susannne Bancroft, a granddaughter of the historian, speaks Spanish with fluency. The Carrolls are among the Americans best known to, and best liked by, the Parisians. Mr. Carroll, who is a son of the former Governor of Maryland and a brother of Royal Phelps Carroll, is a member of the Circle de la Rue Royal in Paris, almost as exclusive as the Union Club of France. Mrs. Carroll, as a result of the work among the poor, is called the right arm of the Sisters of St. Vincent de Paul in Paris. One of the first motor tours made by the Carrolls was through Belgium, Germany and Holland. Mr. and Mrs. John Van Schaick and their daughter, Miss

(Continued on page 64)

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AROUND THE WORLD BY MOTOR CAR

By Victor Lougheed

The idea of making a round-the-world trip by motor car has been suggested several times during the past few years, and in one or two cases has been attempted. Only a small measure of success has attended these attempts, however, which leads to the conclusion that the trouble has been with the routes selected as much as with the motor car's capacity for difficult journeying. One adventurous motorist planned a trip by way of Europe, Northern Africa and Southern Asia, but, as might have been predicted by any one familiar with road conditions in the countries through which such a tour would have to be made, nothing came of the project. Another round-the-world trip, not yet completed, is based on the idea of steamship voyages from country to country, with extensive touring at each landing point. This, while interesting, and at the same time no inconsiderable test of the capabilities of a car, hardly constitutes a genuine round-the-world journey on the wheels of the car itself. It is, in fact, around the world *with* a motor car rather than *by* one—a subterfuge, not the deed.



A TYPICAL SCENE IN THE SIBERIAN FOREST

When it comes to exhaustive consideration of every possible route, it is surprising that so little attention has been directed to Siberia. There seems to be every evidence that road conditions along the line of the trans-Siberian railway are little worse than those across the American continent, except in regard to the difference in distance. And, since several motor vehicles have successfully covered the distance between the Atlantic and Pacific oceans, there is reason to believe that equal success would attend an attempt to drive a car from Paris to Pekin or Vladivostok, by way of St. Petersburg, and thence along the line of Russia's famous railway. The distance from Paris to St. Petersburg is about 1,700 miles, and several cars already have made this trip, one of them having been driven by a woman—Madame Lockert, proprietor of a Paris motor-car paper. From St. Petersburg to Vladivostok is 5,307 miles by the railway, and probably not more than one or two thousand miles farther by the trans-Siberian highway than by the straighter railway.

By leaving St. Petersburg as early in the spring or summer as weather conditions would permit, it should be possible, with good luck, to reach the Pacific and cross to the United States in time to make the American trans-continental journey before winter was hopelessly far advanced.

Since railway construction is always, of necessity, preceded by some sort of wagon roads, it should help in some manner to overcome all difficulties that would be likely to be met. Even if worst came to worst, the possibility of running for short distances on the railway ties (as was done by certain of the American "trans-continentalists"), would make the likelihood of utter failure very remote. Moreover, the proximity of the railway would provide a certain and dependable means of shipping gasoline, tires, and other supplies, and the railway repair-shops might come in handy at intervals.



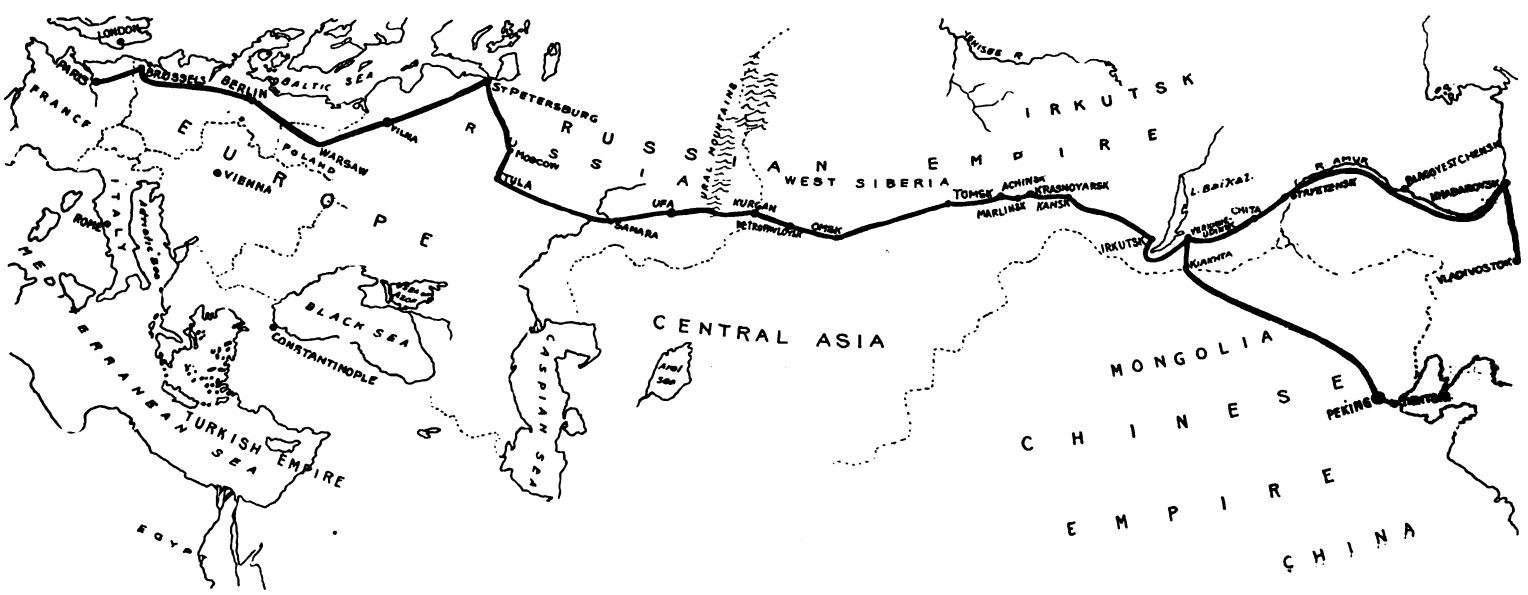
HOW THE RAILWAY AND THE HIGHWAY HAVE BEEN BUILT TOGETHER

The article that commences on the following page is interesting in that it deals in detail with the conditions that a motorist might expect to encounter in Siberia. Mr. Lodian, the author of the article, was one of the engineers who built the trans-Siberian railway, and the sources of his information, consequently, are of undoubted reliability.

After the war between Russia and Japan is over, it seems certain that the possibilities of this trip will attract the attention of some enterprising motor manufacturer desirous of testing the reliability of his car, and, incidentally, of securing an amount of advertising that is not to be despised. The successful completion of the round-the-world trip will mark an epoch in motor-car history, and will place the new conveyance fully on a par with the railway vehicle as a practical means of long-distance travel. One individual is now making preparations for a round-the-world trip by motor car, but it seems doubtful whether his plans will mature owing to the fact that he intends taking the southern Asia route.



TYPICAL OF SIBERIA FOR THOUSANDS OF MILES



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A TRANS-SIBERIAN MOTOR ROUTE

By L. Lodian



ALONG THE RIVER FRONT OF TOMSK

For a trans-Asiatic route whereon it would be practicable to purchase petroleum throughout with fair certainty there is but one feasible route—the all-Russian. It follows the railway for more than half the distance, and the telegraph the whole. The telephone, too, is common between the workmen's houses and division-engineers' headquarters along the trans-Siberian. So, if one travels along the 5,000-mile highway from the Urals to the Pacific, he will for hundreds of miles be within a stone throw of the railway, though, now and then, he may deviate from half-a-dozen to a dozen miles from the track. In recompense, he will pass through the villages, and some towns—but he will have to take his chances in the way of roads, whether he follow the makeshift tracks skirting the railroad, or follow the main highway where it deviates from it. The whole trip can be made on one passport, and there are no customs' regulations once St. Petersburg is left.

July to October are fair months for visiting Siberia. Earlier—April to June—the motorist is likely to run into the late spring floods.

Assuming that the motorist has all his papers en règle, which can only be done at the capital, St. Petersburg—he will start on the long run overland to the Urals. The route southeast to Moskow is perhaps the best stretch of road in Russia. Thence one may proceed to Tula, near where resides the gifted Tolstoi, or he may go by way of Riazan.

From Riajsk, the road passes through Pensa, Samara, Ufa, and Zlatoust (the last town in Europe, but not the last station, which is about half-a-score miles further east, and is at the village Ypkymka). All this route is through the heart of central Russia, mostly flat, now and then undulating, but never so monotonous as some of the flat expanses in the western United States. This is one vast grain-growing belt. The roads nearly all are either all dust or all mud—according to whether the weather is wet or dry. Mosquitoes swarm six months of the year almost everywhere, and bedbugs swarm in the village inns and houses the whole of every year. Fortunately, the railway stations and the houses of the Habobs (local squires) are exempt—due to careful supervision.

Traversing the picturesque Urals, the gradients range from 15 to 25 degrees, enough to test the best of cars.

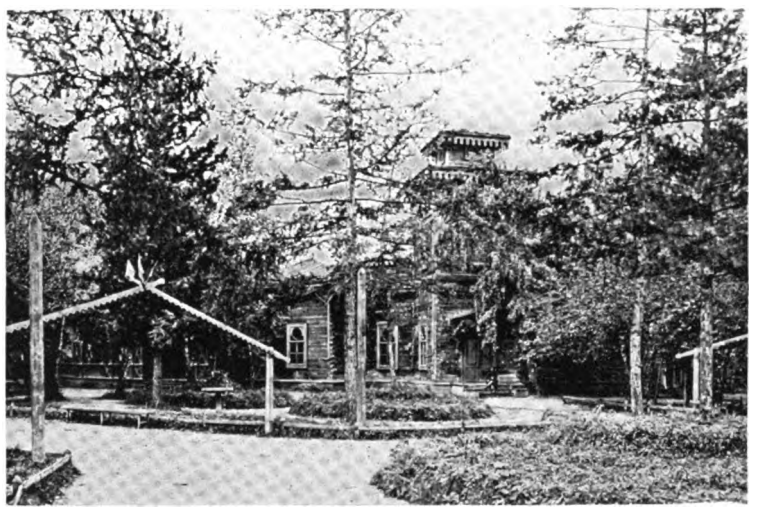


THE MAIN STREET OF MARIINSK—A TYPICAL SIBERIAN TOWN

The first Asiatic village is Ciroctan; the first town is Cheliabinsk. Here begins the trans-Siberian railroad system.

From Cheliabinsk, the great 2,000-mile stretch across the vast western Siberian steppe is entered upon. The towns en route are Kurgan, Petropavlosk, and Omsk. The river Ob, now reached, makes the boundary of western from central Siberia. Roads are indifferent all the way, still, they are far superior to many Connecticut mud highways. There is no accommodation on the railway bridges crossing the rivers for wheeled traffic, so a motor would have to be ferried across, or the section engineer might, as a favor, permit you to rumble across on the ties, or perhaps would mount your vehicle on a hand-car, and quickly push it to the other side.

Thus far, the route through western Siberia is often monotonous, rolling here and there, and sparsely timbered. It is the least-interesting portion of the trans-Asiatic trip. But, from the Ob river, entering central Siberia, you begin to find well-forested country; and, after circuiting via Tomsk, you enter the dense *taiga*, or wooded region, that, with its mountains, lasts for some 3,000 miles, right up to the Pacific.



A SUMMER VIEW IN THE CENTRAL PARK OF KRASNOYARSK—WHERE THE TRANS-SIBERIAN RAILWAY CROSSES THE YENISEI RIVER



THE KEMCHYRA RIVER—A HOWLING TORRENT DURING THE SPRING-TIME FLOODS



THE TRANS-ASIATIC HIGHROAD WHERE IT ENTERS TOMSK

From Tomsk, where begin the beauties of the trip and the troubles, the route is by way of Mariinsk and Achinsk to Krasnoyarsk. Here begins the climb of the central Siberian *ciera* or tableland, which extends the 660 miles to Irkutsk, in the valley of the Baikal. It is throughout a beautiful journey. There are villages every 16 to 20 miles, and provisions are cheap, though white bread is difficult to obtain except in the towns.

From Irkutsk you can cover the 40 miles to Lake Baikal, and go aboard the tram-ferry, or follow the highway around the southwestern end of the lake. The gradients are the worst anywhere in Siberia—from 30 to 45 degrees, sometimes, over the Altai spurs. The Mujiks take their tarantasi and teleri (wheeled vehicles) and sahi (sledges) over these

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inclines, dashing down at breakneck speed, and occasionally coming to grief, but then their vehicles are not of much value. With a motor car, it is best to exercise discretion, and rely upon your own judgment as to whether you are safer in the car or out of it.

Verkhne-udinsk is the first town on the trans-Baikal; then comes Chita, where you mount the Iabloni range and continue on the high plateau to Stryetensk, on the headwaters of the Amur-river system. Here the made highway really ceases, and communication with the Pacific must be by steamer down the Amur to Khabarovsk, and thence to Vladivostok.

It is a fact that between the numerous towns and villages on the Amur, various stretches of fair roads exist, but these roads are not continuous. Therefore, it would be only practicable for a motor to cross Siberia on its own wheels by arriving at Stryetensk in the late fall, say at the end of October, and then alternately using the frozen river and stretches of road by way of Blagovestchensk to Khabarovsk. There is a constant caravan traffic all through the winter along the



A GENERAL VIEW OF KRASNOYARSK, WITH THE YENISEI RIVER IN THE DISTANCE



WHERE THE RAILWAY CROSSES THE RIVER UCHAIKI, IN THE STATE OF TOMSK—NOTE THE WAGON TRACKS BESIDE THE RAILS

Amur, which also makes use of the skate-cut frozen-over roads, so it would be no great effort for a motor car to follow. But, the dry cold being intense, care must be taken to avoid undue exposure.

From Khabarovsk to Vladivostok, there is a 400-mile highway—but oh! so crude! Still, it is not impossible, and, if made in the cold weather, the congealed Usuri river could be run over part way, in making progress south.

Thus would end the pioneer trans-Siberian trip in a motor car.

If I could emphasize a word of advice to the motorist ambitious to negotiate the trans-Siberian route successfully from the Urals to the Pacific, it would be—go alone! The Russians always are suspicious of two, and naturally will be especially so for some time to come. But with one, the authorities think, "Oh, anybody can look after him!" The result is, he is left pretty much alone; his isolation scares him; the Russian admires his pluck—making such a long journey single-handed; and he has nobody else to trouble about. The old saying is true—He who travels alone, travels longest.



THROUGH THE VALLEY OF THE KEMCHYRA—MORE WAGON TRACKS ON THE RAILWAY EMBANKMENT

The best chance of success in the attempt to cross Asia, would be with a kerosene motor, kerosene being obtainable throughout Russia and Siberia. In eastern Siberia, from Chita to Vladivostok or Khabarovsk, the oil-selling townlets would be, perhaps, a hundred miles apart, so provision might have to be made ahead; or, in extremis moribundus, it might be



IN THE VILLAGE OF BOROTOL, CENTRAL SIBERIA—A RUSSIAN DROSKY IN FOREGROUND

tapped from the barrel of a caravan you may encounter en route.

Perhaps a shorter and no more difficult manner of concluding the trip would be to go south from Verkhne-udinsk, just after leaving Lake Baikal. This route would lead first to Kiakhta, the great tea emporium on the Mongolian frontier; thence to Urga, and from there over the great desert of Gobi to Pekin. For the last ten years, a telegraphic line has been in operation across this great waste, and the route is well marked and fairly well maintained by the passage of tea caravans, so there is little likelihood of the motorist losing his way. The fuel problem here would be the chief difficulty, but perhaps could be solved by arranging to have supplies sent sufficiently far ahead by caravan.

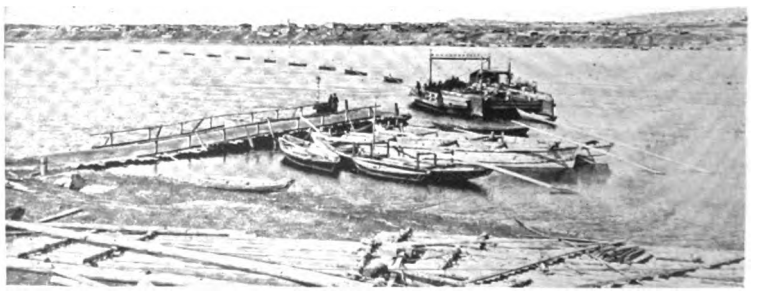
Probably for the 1,000 miles or so across the Desert of Gobi the fuel supply might be more or less problematic, unless very careful arrangements were made beforehand. For half the distance, kerosene would be obtainable from the natives, who keep it in their bytki (huts), if not as an illuminant, as a specific for vermin. This kerosene is by no means of the same quality as is commonly to be had in the United States, for Russian ideas of oil refining are crude as compared to those of the United States. Its fumes are decidedly stifling, and it is equally low grade as a fuel.

Nearing Pekin the motorist would begin to find the more reliable American oil. The fuelless district would be from half-way between Urga and the great wall of China, where it would be necessary to send oil ahead, or, if one were in touch with someone who could be depended upon in Pekin, it could be telegraphed for to be sent out from town, to be picked up en route.

If worst came to worst, it would be easy to fall in with a caravan, and secure a tow for an indefinite distance for a few roubles, though this would, of course, discredit the accomplishment.

Though the all-Russian route undoubtedly would be the best for a round-the-world motor journey, what I know of southern Asia leads me to believe that it would be possible to make a motor trip from Pekin to Europe by a southern route, following the caravan route from Pekin to Singan, and from there along the more ancient caravan route to Lanchau. From that city it would be necessary to go south by way of the high plateaus to Lhasa, Tibet. From Lhasa the route would climb over the Himalayas to Darjiling, India, and thence to Benares, Lahore, and Kabul, to Teheran, Persia. Then, by way of Tiflis and Sinope to the old Byzantium of the sultans, all would be plain sailing to Paris. There are telegraph lines almost the entire distance and the going is not nearly as bad as might be expected. Even Tibet is not the forbidden land that some juvenile scribes would have the public believe it. Military and railway engineers in the Russian service have penetrated every part of it many years ago, and their detail maps of the country are remarkably minute. The "horrible cruelties," "atrocious sufferings," of recent European travelers, are not founded on fact, and were mercilessly exposed at the time of their publication by a prominent Paris literary review.*

*L'Imposture Landor; ou le petit Munchausen—Journal la 'librairie Vol. 17, No.2.



WHERE THE PIONEER MOTOR CAR WILL BE FERRIED OVER THE YENISEI

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MEDITERRANEAN MOTOR-BOAT RACES

By Monsieur Carbureter

The lesson of the motor boat races at Monte Carlo is that cockle-shell hulls and heavy motors "won't do." The exposition, fêtes, and races were crowded into a program extending from April 9 to 14, with the "Matin's" big race of the cruisers from Algiers to Toulon following closely afterward.

If a motor boat, while being run at full speed, suddenly goes to pieces, with no warning, and sinks in 50 feet of water, the inference is that something was radically wrong in the construction. This is what happened to the majestic Panhard-Levassor cruiser twenty-four hours after it had won the open event for all cruisers and racers over a 200-mile course, in 2 hours, 22 minutes, 54 seconds. The craft went down all at once, evidently as a result of the hull breaking asunder, unable to stand the strain of the powerful motors, and the crew had the luck to be gathered out of the waves by a tugboat which happened to be near.

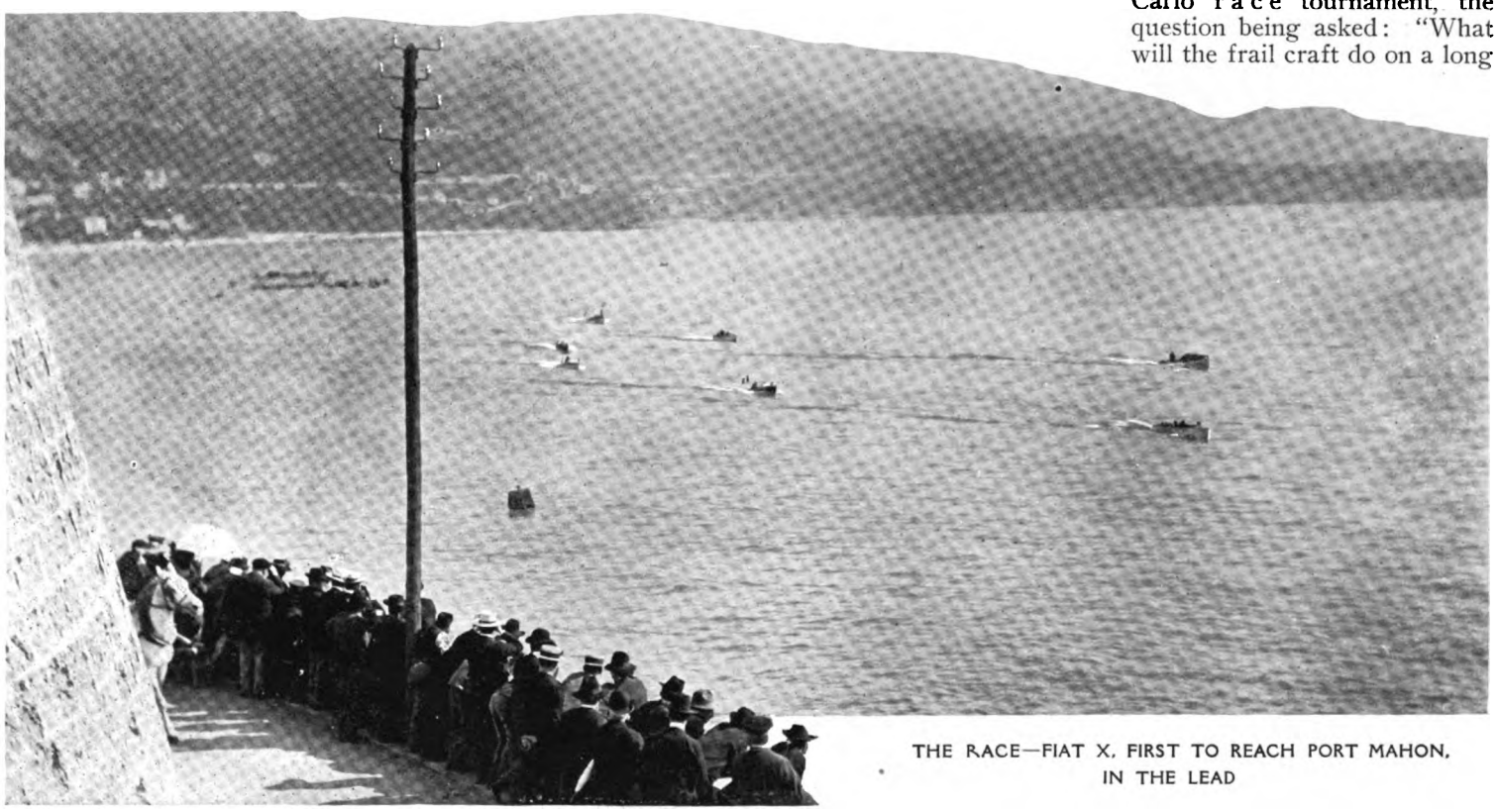


AT ALGIERS—HERACLES II AND FIAT X AT ALGIERS BEFORE THE RACE

Considered separately, beautifully constructed hulls and high power motors are worthy of great admiration, but the incongruous combination of light boat and heavy motor has been shown to be a folly. After the several accidents had occurred in connection with the races, several persons, qualified to judge in the matter and having closely observed the movements of the boats, expressed their condemnation of the prevailing tendency to sacrifice weight and security for the sake of speed. M. Jellinek-Mercedes and the Prince of Monaco were prominent among those expressing opinions to that effect.

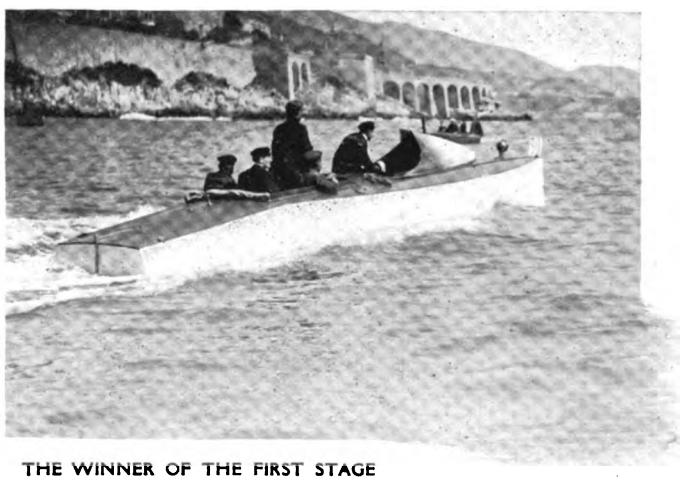
The chapter of accidents also includes the *Marguerite,* 21-footer with a Mutel motor, which got its "mouth full" of water in the heavy sea and finally went on the rocks. The famous *Trèfle-à-Quatre,* which won the international race at Southampton last year, was burned and scuttled in sight of the excited spectators at Monte Carlo. The fire was evidently of slight proportions, but the self-constituted "property savers," in the form of authorities hovering about in boats, immediately chopped holes in the *Trèfle's* hull, and in a few moments she was "saved"—and worth about thirty cents.

The most important ocean race ever attempted for motor boats was run from Algiers to Toulon, starting from the African port. This was organized by the Paris daily paper, "Le Matin." It created great interest on account of the accidents that had occurred during the Monte Carlo race tournament, the question being asked: "What will the frail craft do on a long sea voyage?" The answer is too emphatic to be misunderstood.



THE RACE—FIAT X, FIRST TO REACH PORT MAHON, IN THE LEAD

The entries for the race were: *Mercedes-Mercedes,* owned by M. Jellinek-Mercedes; *Mercedes C. P.,* owned by C. L. Charley; *Quand Même,* Duc Decazes; *Gregory,* Lewis Nixon; *Napier I,* S. F. Edge; *Napier II,* S. F. Edge; *Le Camille,* Mme. du Gast; *Le Dubonnet,* M. Dubonnet; *La Patrie,* Marcel Hamand; *L'Albatros,* Doranlo & Co.; *Le Cosmos,* P. Courtot; *Malgré Tout,* Ch. Roche; *Mab,* Mr. Thubron; *Héraclès II,* Société Héraclès; *FIAT X,* Fabbrica Italiana Automobile di Torino; *Pi-Ouit,* Damoy-Picon. The two Napiers, *Gregory, Le Dubonnet, La Patrie, L'Albatros, Le Cosmos, Mab,* and *Pi-Ouit* did not start.



THE WINNER OF THE FIRST STAGE UNDER WAY

In advance of the race there was a series of celebrations at Algiers, including a "fête Vénitienne," followed by a naval combat, and a nautical battle of flowers.

The racing committee hav-

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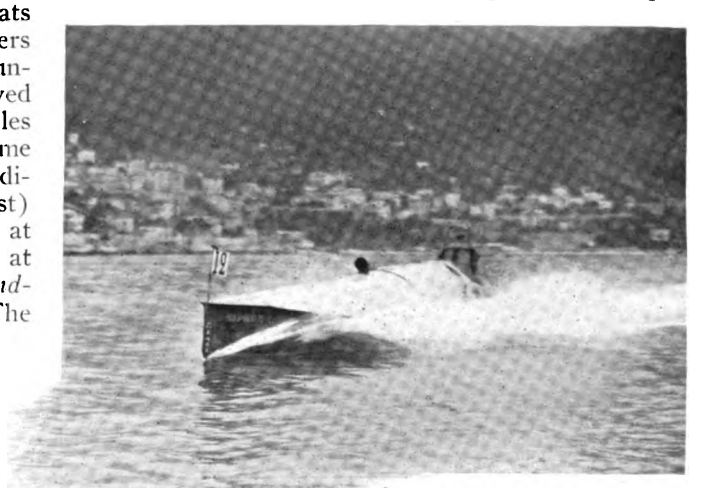
THE BURNING OF TREFLE-A-QUATRE AT MONTE CARLO

ing the trans-Mediterranean race in hand disqualified the *FIAT X,* as, in its opinion, the little craft was too small and frail to withstand the comparatively heavy swells of the sea. The committee wished to avoid the onus or responsibility of any fatality or accident that its judgment believed more than probable. The *FIAT X,* however, started with the other motor boats—but at its own peril, and unsanctioned.



MERCEDES CHARLEY
"GOING SOME"

No little surprise was manifested, therefore, when the little *FIAT X* completed the first stage of the race by arriving at Port Mahon, Minorca, four hours before any of the other competing craft. The racers escorted by torpedo boats of the French government left Algiers at 6 o'clock on the morning of Sunday, May 7th. The *FIAT X* arrived at Port Mahon at 6:15 p.m. (200 miles in 12 hours—most remarkable time for so small a craft under the conditions); the *Camille* (Mme. du Gast) at 10:25 p.m.; the *Mercedes C. P.* at 11 p.m.; the *Mercedes-Mercedes* at shortly after midnight; the *Quand-Méme* at 1:45 a.m., May 8th. The *Malgré-Tout* and the *Héraclès II* were unfortunate, and had to be towed in.



NAPIER II., ONE OF THE BOATS
THAT DID NOT START

This first stage of the race, from Algiers to Port Mahon, was in most auspicious weather for the safety of the frail boats. At best, be the distance great or small, a sea journey for them is dangerous. Nothing worse, however, than a moderate swell had to be fought, which was sufficient to half fill several of the boats long ere they reached their destination.

After being postponed from day to day on account of adverse weather, the second stage of the race from Port Mahon to Toulon was started on Saturday, May 13th, at 4 a.m. A heavy swell was on, which steadily grew worse and rapidly developed into a terrific storm. Even the torpedo-boat destroyers which convoyed the racing craft found considerable difficulty in maintaining headway; and the cruisers *Desaix* and *Kléber* with difficulty maintained wireless communication with the destroyers.

The motor boats finally, unable to withstand the violence of the hurricane, requested the warships to tow them in. In several instances the wire cable used for towing snapped from the force of the storm, and after rescuing the crews, the convoys abandoned six of the boats, four sinking. The *Mercedes C. P.* sank, and its crew was taken aboard the destroyer which was convoying her. The cruiser *La Hire* was finally compelled to take the *FIAT X* aboard, the diminutive proportions of the craft enabling the Italian boat to be thus saved. The *Camille,* after several hours' battling with the elements, was finally abandoned and Mme. du Gast with the crew were taken aboard the destroyer *Dard.* The *Malgré-Tout* sank after her crew had been taken aboard the destroyer *Carabine,* and the *Mercedes-Mercedes* met a like fate, its crew being rescued by destroyer *Pertuisane.* The *Héraclès II* did not sink after her crew had been taken aboard the destroyer *Sarabacane,* though it is not likely that the vessel remained afloat very long after she had been abandoned by her crew.

Some of the rescues of the crews of the several motor boats were of the most thrilling character. After unsuccessfully attempting to tow the *Camille,* the cruiser *Kléber* was compelled to run the craft down in order to get near enough to take aboard Mme. du Gast and her followers. In the attempt, Mme. du Gast fell overboard and for a few minutes was thought to have been lost. Two sailors of the cruiser, however, finally consummated her rescue.

The *Quand-Même* was the last of the racing craft to be accounted for. She had eleven men aboard her—Duc Decazes, M. Chauchard, Lieutenant Hubert Desfosses, of the French navy; M. Baudoin, the constructor of the motor in the boat, and seven of the crew. After a futile struggle to reach port, the boat was finally abandoned at sea.

Aside from any criticism of the racing committee, which might be made against its permission of the racing craft to continue on the second stage of the race, the storm having arisen shortly after the start was made, the whole affair seems obviously a lapse of clear judgment on the part of those responsible for the contest. The only recent "accidents" at Monte Carlo evidenced the folly of attempting to race such cockle-shell crapt at all, not to speak of deep-sea racing such as this trans-Mediterranean fiasco. Due credit must be given, however, to the racers that successfully completed the first stage from Algiers to Port Mahon. They have demonstrated that, with more attention given to the construction of the hulls, which should no longer be mere shells, and less attention to the piling in of more and more horsepower without due consideration to the further strengthening of the other parts of the craft, the motor boat is a real commercial possibility.

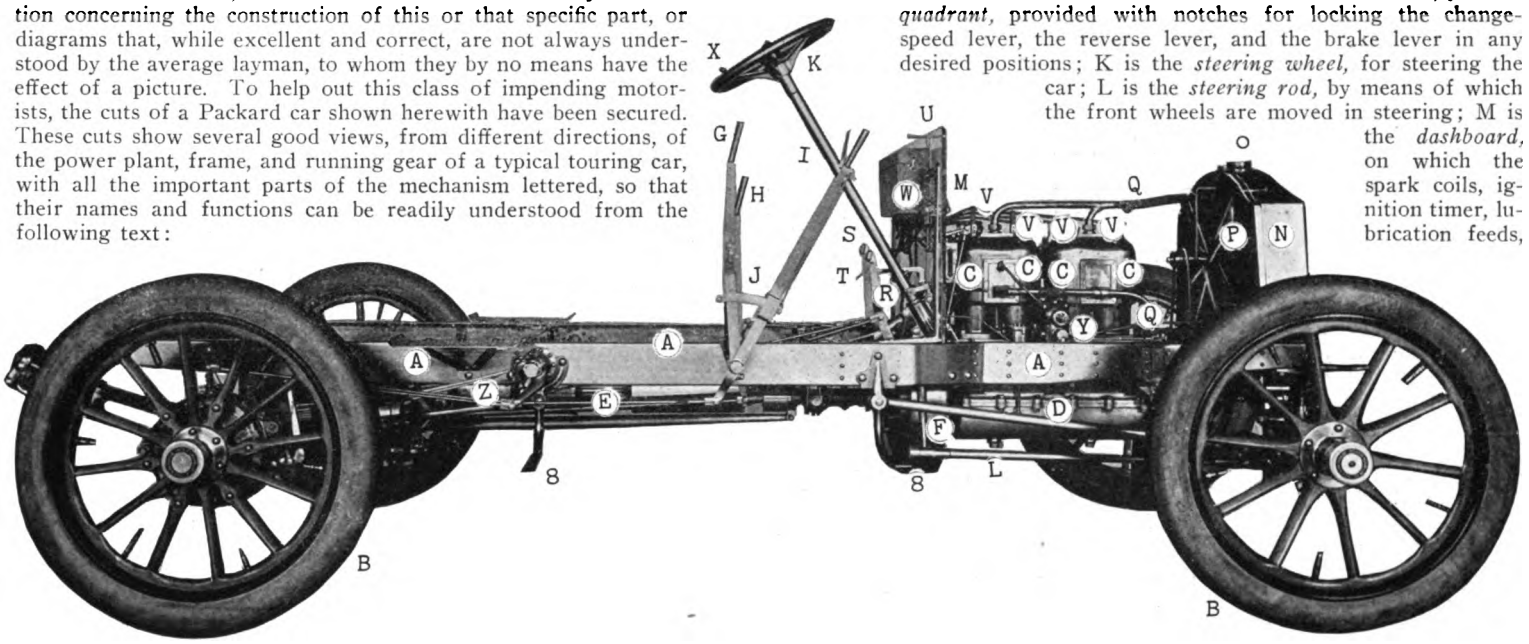


LE DUBONNET AT ALGIERS

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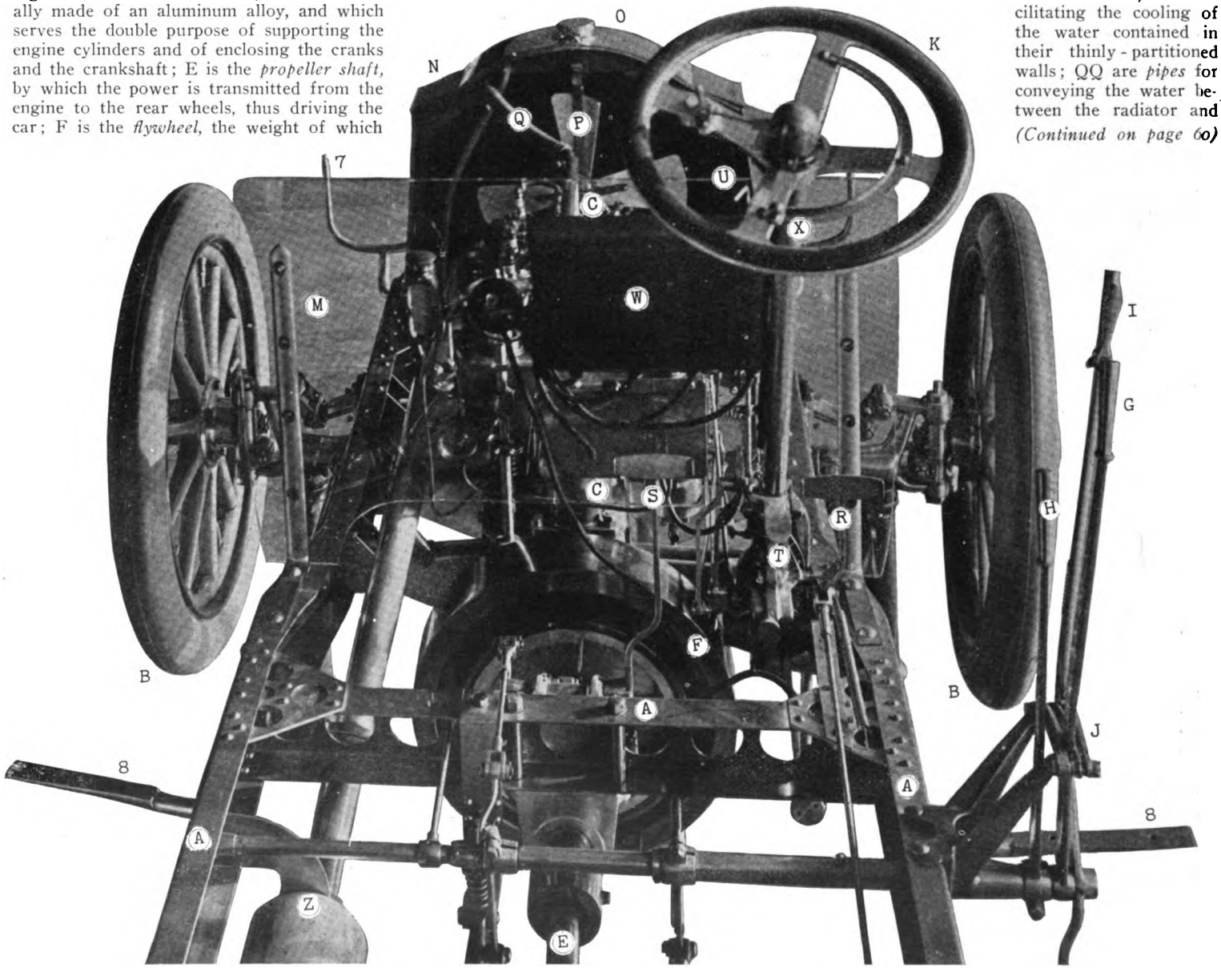
THE MACHINERY OF A MOTOR CAR

Many people who nowadays are interested in the development of the motor car have not yet progressed even far enough in their understanding of the new conveyance to know at sight the different parts of it. There has been much written and explained concerning the details of motor-car mechanism, and it is not difficult to secure very clear information concerning the construction of this or that specific part, or diagrams that, while excellent and correct, are not always understood by the average layman, to whom they by no means have the effect of a picture. To help out this class of impending motorists, the cuts of a Packard car shown herewith have been secured. These cuts show several good views, from different directions, of the power plant, frame, and running gear of a typical touring car, with all the important parts of the mechanism lettered, so that their names and functions can be readily understood from the following text:



In Figure 1, AAA represent the *frame,* which is made of thin sheet-steel members, pressed into shape between powerful dies when hot, and then riveted together; BB are the *wheels,* with wood spokes, pneumatic tires, and ball-bearing hubs; CCCC are the engine *cylinders,* in which the power is developed, and which are made of cast iron, each pair cast together; D is the *crankcase,* which is usually made of an aluminum alloy, and which serves the double purpose of supporting the engine cylinders and of enclosing the cranks and the crankshaft; E is the *propeller shaft,* by which the power is transmitted from the engine to the rear wheels, thus driving the car; F is the *flywheel,* the weight of which gives steadiness to the running of both engine and car; G is the *change-speed lever,* by which the various ratios of rotation between the engine and the driving wheels are brought into use; H is the *reverse lever,* by which the car is backed; I is the *brake lever,* by which brakes are applied to the brake drums that are attached to the rear wheels; J is the *quadrant,* provided with notches for locking the change-speed lever, the reverse lever, and the brake lever in any desired positions; K is the *steering wheel,* for steering the car; L is the *steering rod,* by means of which the front wheels are moved in steering; M is the *dashboard,* on which the spark coils, ignition timer, lubrication feeds, and various other devices are mounted; N is the *radiator,* in which the water that cools the engine cylinders is in turn cooled by air, so that it can be used over and over with a minimum of replacement; O is the *filling cap,* through which the radiator can be filled when necessary; P is the *fan,* which draws currents of air through the many small holes in the radiator, thus facilitating the cooling of the water contained in their thinly-partitioned walls; QQ are *pipes* for conveying the water between the radiator and

(Continued on page 60)



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THE PURSUIT OF A ROAD-HOG

By R. E. Vernède

Miss Betty Weldon sat in quivering indignation upon her horse's head while a young groom made efforts to detach as quickly as possible from the frightened creature the remains of what had once been a dogcart.

"Make haste, James," said Miss Weldon, impatiently, "I can't keep Ricky down all day. It's that left trace. Cut it if you can't get it any other way. Quiet, Ricky, quiet. That's it. Oh, there's another of those brutes coming. Run and stop him, James, before it is too late."

James sped along the road—as fast as his tightly-booted and still trembling legs would permit him—to stop the motor car that was advancing upon them. His mistress sat still, soothing her horse and biting her lips to keep herself from weeping.

Three minutes ago she had been driving her brand-new cart peacefully along the road, among the summer hedges, pleased with Ricky, pleased with herself, pleased with all the world. Now every pleasant feeling was shattered like those bits in the roadway that she dared not look at for fear she should scream. She supposed she ought to be grateful for not having been killed or maimed, and for James and Ricky not having been killed or maimed; but she wasn't grateful. Not the very least bit. She was simply and entirely furious.

"I should like to kill him," she murmured.

The person in question was the motorist who had, beyond any shadow of doubt—in Miss Weldon's eyes—caused the catastrophe. He had come whizzing past in spite of James's warning arm and still more warning squeak. The result was inevitable. Ricky, like his mistress, hated motor cars. It was not his fault that he could not get accustomed to them; it was their fault. They were horrid things that flashed by with terrific noises that no high-strung horse could stand; and Ricky was eminently high strung. He had reared instantly upon this occasion, plunged, jibbed, and bucked all in one motion, and then dashed a brief hundred yards into a high bank. Betty had been shot into the top of the hedge; James had turned a pallid somersault on to the riding path, arriving luckily upon his feet; the cart had scrunched.

By the time Betty had slid out of the brambles on to Ricky's head—a movement she accomplished with a practical velocity that would have required an eye witness to believe it—the motorist had vanished. She had seen him just ahead of her before the crash. He must have known the mischief he had caused. Yet he had gone coolly on his way. It was enough to make any one bite her lips.

And now another wretch was coming, unless James had succeeded in stopping him. Looking up, Betty saw that James had succeeded. The car had been stopped. One of the two men in it had got down and was running towards her, exclaiming loudly:

"By Jove, Betty, you have had a smash! What was it?"

She recognized her cousin, Algernon Shaftly, an amiable youth, not very intelligent in spite of his devotion to herself—at present very much concerned to see his fair cousin in such a plight.

"Motor, of course," said Betty, curtly. "Just help James to unfasten that trace. Now—whoa, Ricky—up!"

The horse got up with a scramble, plainly none the worse for the adventure.

"Nothing but the cart hurt," said Mr. Shaftly, with a soothing smile. "At least—you are not feeling bad, are you, Betty?" he added, in no little anxiety, for Betty's expression was full of pain.

"I—I—if I were a man, I'd horse-whip him!" Miss Weldon's tears began to course, but she flicked them away with a frown of impatience. "Oh, Algy," she said, turning suddenly upon that distressed young man, "couldn't you—don't you think you could do it for me?"

"What?"

"Horse-whip that—that road-hog, who did it all?"

"I wish I could catch him—I'd do it like a shot," said Mr. Shaftly, who indeed would have done anything within his power for his cousin. "The only thing is, you know, the feller's gone, you know. If he was going forty miles an hour—as James swears he was, he'll be——"

"But he wasn't," said Miss Weldon, positively. "James doesn't know anything about it. He's no judge. The man wasn't going more than twenty miles an hour, because we should have caught him in another minute, and it's not more than ten minutes ago even now. Oh, don't go, if you don't care to," said Miss Weldon, turning away with haughty sorrow as Mr. Shaftly stood doing mental arithmetic with a worried expression. "I know you motorists always stick together. It's nothing to you, of course."

"But I say I want to go," said Algernon. "The only thing I was thinking was that with that start he's bound not to be caught under half an hour, and there's sure to be some other cars on the road. Hi, Givers!"

He signalled to his chauffeur to bring the car up, in the hope that Betty would take the will for the deed. She had surrendered her horse to the small groom.

"You mean you mightn't recognize him," she said.

"Well, I haven't seen him, you know," said Mr. Shaftly, climbing into his car with an affectation of alacrity, nevertheless.

"I thought of that," said Betty. "I'll come with you. Put your man down. He can look after the dogcart while James walks Ricky back. I used to say I would never get into a motor car, but it's in the cause of justice. He ought to be thrashed!"

She climbed up as Givers, Mr. Shaftly's man, who spent a fearful existence watching for policemen and wondering when his employer would come to a sudden end, got down. Givers's face expressed unbounded relief. He had feared that he might be going upon this perilous chase himself, and the task of looking after the bits of mademoiselle's dogcart was pleasant indeed by comparison.



ONE OF THE TWO MEN GOT DOWN AND WAS RUNNING TOWARDS HER

"I seet by ze bits, sare?" he suggested.

"Yes, until they come and fetch 'em," said Algernon.

"Zen I follow an' pick up you?" inquired Givers, anxious to have his instructions clear.

"No, you don't," said Algernon, crossly. "You'll have to get back as best you can. I shall return after I have seen Miss Weldon home. Pick us up indeed!" he added to Betty as they started. "Givers doesn't seem to get on with his English a bit."

Betty shuddered slightly. She trusted that there would be no reason for any one to pick them up. She wondered if Algy was a good driver.

"It's the first time I've ever been in a motor," she observed, softly, to inspirit him.

The words were inspiriting in a way, but Algernon could not help wishing that she knew something about driving. She kept on urging him to go so confoundedly fast. It was all very well going confoundedly fast when Givers was his companion, for Mr. Shaftly had no compunctions with regard to his own bones or his chauffeur's. He enjoyed driving recklessly as a rule. Betty, however, was a responsibility. He would have liked to make her first outing a piece of straight, moderate driving, calculated to give good impressions and leave a whole skin. A sprint now and then, of course, just to show what a car could do. As it was, the more he sprinted the less she seemed to be impressed. Her anxiety to catch up with the road-hog appeared to leave her unable to be astonished even at his top speed in a beastly narrow road. It was decidedly annoying to an enthusiastic motorist anxious to show off his machine to the most charming girl in the world.

"Oh, do go quicker, Algy," she kept saying, and he would reply "all right," meekly, wishing at the same time that she had forgotten to bring with her that ridiculous-looking whip, used to flick Ricky. She held it between them and it put Mr. Shaftly off. The prospect of having to horsewhip an unknown person at the end of the journey—with that absurd thing—was enough to make a man nervous. In the heat of the moment, or even with a proper whip, he would gladly have performed the operation. But to have to explain first and then to advance with that thing—he would much sooner punch the man's head!

All this time the road was performing wonderful gyrations—or the car was. Betty had read M. Maeterlinck's motor article with not much comprehension a little while before. She had thought it rather thick. It did not exactly tally with her sensations now. But she did the celebrated author so much justice as to admit that it must be very hard to put down exactly what you feel when going fast in a car. The hedges swam behind in the swiftest manner; and hills that looked as if they

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were going to be steep assumed a level appearance with the most curious suddenness. Trees that grew in the middle of the road one moment jumped back the next into their proper places. Nevertheless it is a fact that those who have only watched cars tear by are not, when they take their own first drive, immediately convinced that they have equalled that impressive speed, even though they are traveling over thirty miles in the hour. Betty could not believe that Algernon was doing his utmost. Once she inquired whether he thought his car needed oiling, and several time she wondered at the moist beads gathering on his forehead.

They debouched—round a sharpish corner—on to what the ordnance map would describe as a second-class metalled road in a way that would have raised beads on the brow of a Gordon Bennett competitor, but Betty, concerned to see if the quarry were in sight, paid no heed to the fact that for a second or two they circled upon two wheels, or that Mr. Shaftly could hear his heart grunting as the car dropped once more on to all fours. A cloud of dust on the near horizon roused Betty to rapture and untimely praise.

"Oh, Algy, how clever of you! There he is. Do go quicker. We must catch him now!"

But for these words Mr. Shaftly would there and then have stopped. A dozen times—in round numbers, which were all he could calculate in—destruction had stared him in the face. Givers, he knew well, would have given him notice long before now—would probably have leaped for his life into two or three soft patches where annihilation might have been avoided at the price of a broken limb or two. That last corner still gave him thrills down the spine. But his cousin's praise was sweet. He reflected that there was—in the opinion of many—a Providence specially vigilant on occasions when common sense deserts us. He drew a third wind of desperation, and the second-class metalled road hummed away in their wake.

* * * * * *

It appeared to George Cunningham, as he moved smoothly along a road well shadowed with wych elms in its dips, and fresh in spite of the hot sun, where it rose into open country, that haste on such an afternoon as this was a sinful thing. He himself had not even felt the temptation, since he started two hours ago, of raising a breeze, or of going any faster than is required just to outrun the flies. He was rather blessing his luck that he had no fair companion with him, knowing their propensity, if not hardened motorists, to persuade a lazy man to show them just what it feels like to go really fast for a minute or two. The road was good enough, it is true, for a race, and in the last five miles he had not passed more than a couple of wagons and half a dozen hens, all neck, as usual, to escape just in front of the thing that terrifies them. Not a dog had come out to bark at him, not a boy to throw his cap under the wheels; and only a couple of miles ahead—Cunningham knew—was the very inn to put a finishing touch to his general peaceful sensations before he turned to go home.

A hooter from the rear was the first intimation he received of fellow motorists on the road. A hooter was distinctly out of harmony with the afternoon. Much more objectionable was the rate and method of the hooting car's progression. It was going at its top speed evidently, but in a series of swerves that menaced the hedges on either side of the road.

"Driver full up," thought Cunningham, and went ahead. The road was not wide enough to risk allowing a car run on those lines to pass. He could easily get right away, he judged, if he chose: at any rate it would be wise to keep in front till the inn was reached. The road widened there, and he himself could get the right side of a drinking-trough. Greatly to his annoyance a yell went up from behind, showing that the drunken chauffeur—if he was drunken—was challenging him to a match. That the man would upset to a certainty, if it went on, a glance out of the corner of his eye convinced Cunningham. He also noticed that there was a lady on the erratic car.

But for this fact Cunningham in his disgust would have let the objectionable car make efforts to catch him till it ran itself off the road, as it was bound to do in the end. As it was he felt constrained to abandon this policy. He knew from experience that the idea of being raced would only move the fellow to more frantic emulation. That—for the woman's sake—was not to be thought of. He decided to take a road obtuse-angled to the right that he could see a hundred yards ahead and let them go by. He slowed down for the purpose.

Mr. Algernon Shaftly gave a whoop of delight at the idea of having run down his man. Betty had advised getting ahead of the road-hog and then compelling him to stop. Of the two she was at once the more intoxicated and level headed. Not having the least comprehension of how a car should be driven, she had not, like her cousin, been frightened into recklessness. Algernon was only capable of not stopping now. He was within twenty yards of his prey and blind to the fact that his prey contemplated a right wheel. Indeed, the right wheel was a fact before Algernon knew it.

"He's turned," squeaked Betty. "He's gone off to the right, Algy! Stop!"

What Mr. Shaftly did is uncertain. Next moment—and for the second time that day—Betty was pitching headlong for the hedge. She fancied she passed Algy's flying frame en route, but could not be certain of it.

"Good Lord!" said Cunningham, as he witnessed this catastrophe. He braked his car, was out of it and by Betty's side before that young lady—to whom in her dazed state the hedge seemed a place of grateful repose after the jerkings of Algy's car—had done much more than open her eyes. She had very pleasant eyes—Cunningham thought—of the kind called violet. He was glad they were open.



"I'M GOING TO—TO HORSEWHIP YOU," STAMMERED ALGY

"You don't feel as if you'd broken anything, do you?" he inquired with the sincerest anxiety. "Awfully lucky the hedge broke your fall. May I——?"

The eyes flashed so indignantly that Cunningham withdrew his proffered hand, much abashed.

"Thank you, no," said Betty, icily, and drew herself up by some nettles. They stung her abominably, but she concealed the pain. "Algy!" she called. "Here!" said the unfortunate Mr. Shaftly. He, too, had had his fall broken, but his head swam, and he could only gaze with astonishment at the buzzing relics of his car.

"Have you got the whip there?" demanded Betty.

"What whip?"

"Can I get anything?" asked Cunningham, seeing that Mr. Shaftly only gazed about him foolishly. Betty turned her back on him.

"Algy!" She stamped her foot at Mr. Shaftly. "Never mind about your car. Get the whip. You remember what you promised?"

Cunningham, at a loss to know how he had offended, watched her go over to the idiot who had wrecked her, pick up a whip from the débris of the car and put it in the idiot's hand, whispering to him the while. Net result, tottering advance of the idiot upon him, Cunningham, while the girl turned her back as though intent on the landscape.

"What do you want?" Cunningham asked of Mr. Shaftly, not unsympathetically.

"I'm going to—to horsewhip you," stammered Algy.

"You don't imagine that that upset was my fault?" asked Cunningham, in sheer astonishment.

"Don't listen to him, Algy," prompted Betty, without turning.

"No, I won't," said Mr. Shaftly, speaking in tones of greater resolution than a determined man would use. "I want—I—look here," he addressed himself to Cunningham. "It's no good talking—not the slightest. It's nothing to do with this upset. That's my affair, and a confounded silly fool I am. I might have known that——"

"Have you done it, Algy?" the prompter sang out again.

"No, but I—look here—take that!" said Shaftly.

That was the whip, and Cunningham took it. He took it in one hand, broke it across his knee, and threw it over the hedge.

"I'm sorry," he said, "if you think you've got anything against me. You're not in a fit condition, you know, and no wonder, after a fall like that. Perhaps, madam," he raised his voice as Algy showed a not very strenuous desire to come at him with his fists, "you would ask this gentleman to defer anything in the shape of a personal encounter until—well, until we're both fresh."

Betty swung round with flashing eyes.

"Algy, come away!" she said. "You're dazed. If he wasn't——" she positively hissed the words at Cunningham (like adventuresses in melodramas), "I would make my cousin k-k-k-k-"

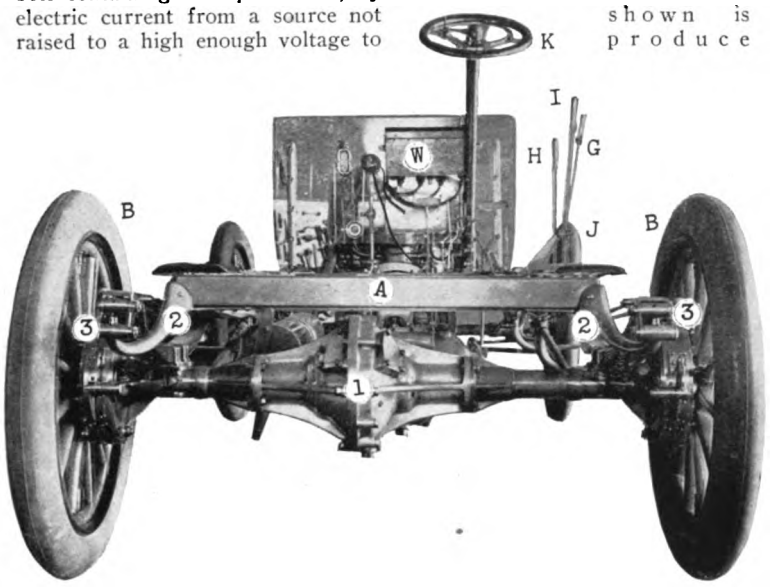
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THE MACHINERY OF A MOTOR CAR

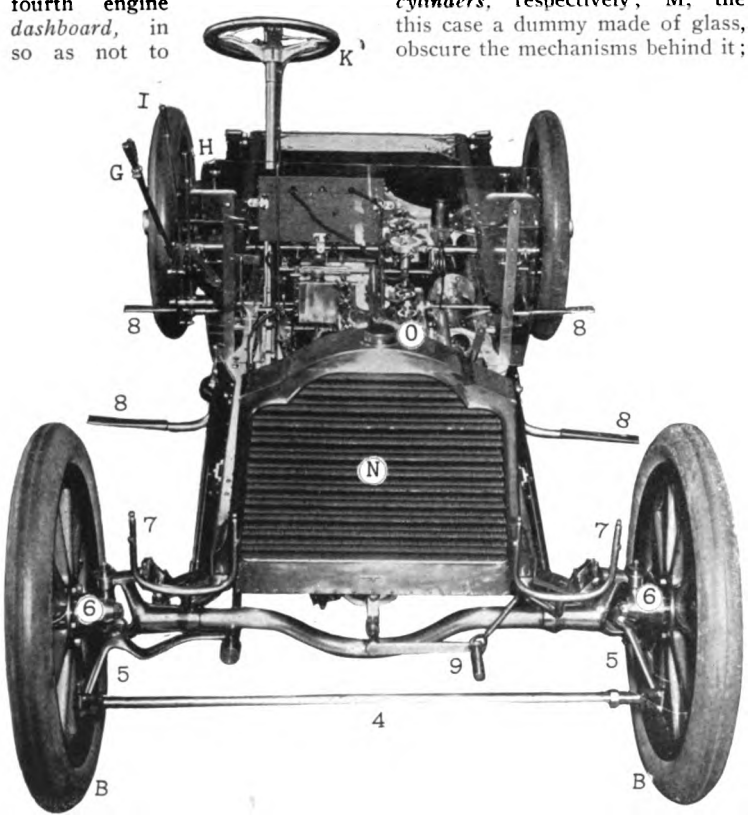
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the double walls (waterjackets) of the engine cylinders, as it is alternately heated and cooled; R is the *brake pedal,* for applying a brake that acts on the transmission system; S is the *clutch pedal,* which when pressed upon disconnects the engine so that it cannot drive the car, by disengaging a clutch that is located in the flywheel; T is the *accelerator pedal,* for varying the supply of the fuel to the engine, much as is done by the throttle lever; U is the *ignition lever,* for adjusting the point in the stroke at which the fuel charges within the cylinders are ignited; VVVV are the *spark plugs,* at the lower ends of which, within the cylinders, the electric sparks are produced that ignite the fuel; W is the box containing the *spark coils,* by which the electric current from a source not shown is raised to a high enough voltage to produce



proper ignition; X is the *throttle lever,* by which quantity of fuel admitted to the engine, and consequently the power, is controlled; Y is the *carbureter,* in which the gasoline or similar liquid fuel is vaporized and mixed with air to form a proper explosive "mixture"; and Z is the *muffler,* into which the exhaust gases are emitted when they leave the cylinders, and in which they are expanded and cooled gradually until they pass into the outer air without perceptible noise.

In Figure 2, besides the parts indicated by the same letters in Figure 1, there are CC, which indicate the top of the first and the bottom of the fourth engine *cylinders,* respectively; M, the *dashboard,* in this case a dummy made of glass, so as not to obscure the mechanisms behind it;

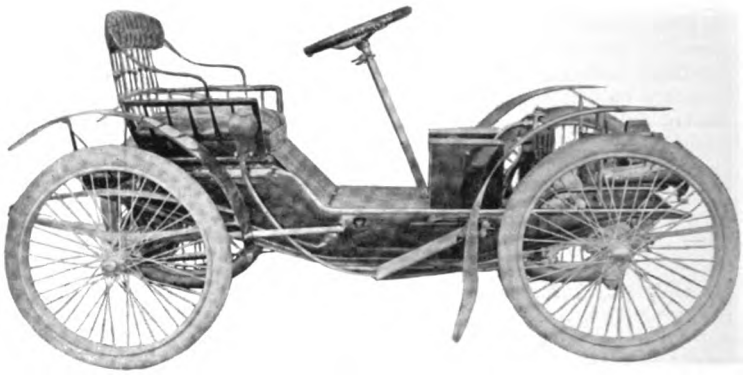


Q, which is one of the *pipes* from the radiator to the engine; and Z, which is the forward end of the *muffler,* the long pipe that runs to it from the exhaust valves of the engine being very apparent.

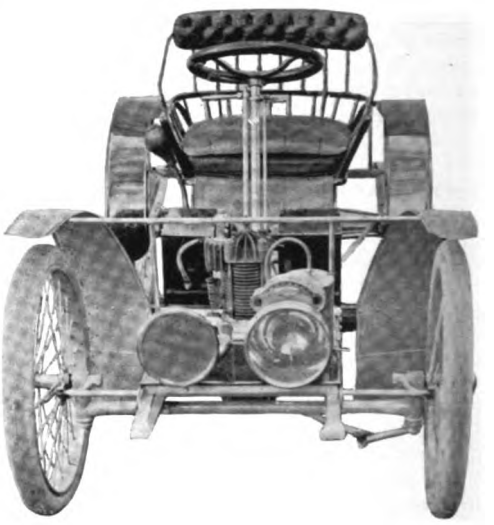
In Figures 3 and 4, the same parts are represented by the same letters, so it will not be necessary to reënumerate them. Several details not shown in Figures 1 and 2 appear here, however, so these are denoted by numbers. In Figure 3, 1 denotes the *differential* casing on the rear axle, in which are contained the bevel gears by which the propeller shaft drives the axle; the change-speed gears, which are manipulated by the change-speed lever; and the differential, or balance gear, which permits one rear wheel to turn faster than the other in going around curves. The *spring horns,* to which the rear ends of the rear springs are shackled, are shown at 22; and the *shackles,* which are short links that permit the springs the necessary amount of end movement as they extend and contract, are 33. In Figure 4, 4 is the *drag link,* by which both steering wheels are made to move together; 55 are the *steering-pivot arms,* to which the drag link is attached; 66 are the *steering pivots,* which permit the front wheels to be turned at an angle to effect steering; 77 are *lamp brackets*; 8888 are irons to carry a step or *running board*; and 9 is the *starting crank,* by which the engine can be turned by hand, as is necessary to start most gasoline engines, unless they have been running recently enough so that switching on the ignition will start them by igniting a charge that still remains in one of the cylinders.

A 375-POUND, TWO-PASSENGER CAR

One of the smallest practical motor cars ever built is one recently constructed by Chas. V. Randall, of San Jose, Cal. This is a thoroughly practical machine—no freak—yet it weighs only three hundred and sixty-five pounds, and will carry two passengers along any average road. The motor is a 2¼-horsepower De Dion, air-cooled, and the transmission is



by single chain. A planetary gear affords two forward speeds, no reverse being considered necessary, on account of the light weight of the car. Wire wheels are used, and the normal speed is eighteen miles an hour, though as high as twenty-seven miles has been made on a perfect road. Sixty miles to a gallon is the fuel consumption. The tires are 26x2½ Goodrich motorcycle, the springs are full-elliptic rear and half-elliptic front, while the frame is of angle steel. A very neat finish is given to the body by the use of leather panels, which have the further advantage of deadening noise and vibration much better than wood. The wheelbase is fifty-four inches and the tread is thirty-six inches. The total cost was about $350. This car offers its builder or some enterprising manufacturer an opportunity to market a small, two-passenger, inexpensive motor car.



HELP THE POLICE

The following letter, recently received by the editor of an English publication, is sufficiently suggestive to require no comment:

Dear Sir:

As a body we motorists are highly law-abiding, and, when we exceed the legal speed limit, we do so unknowingly. We should therefore be in sympathy with the methods adopted by Messrs. Jarrott and Letts, by which they are endeavoring to prevent unwitting breaches of the law. A corps of cyclists is being employed, each member of which has instructions to produce and wave a flag if, in his opinion, he considers any car is traveling too fast. I am given to understand that these cyclist employees will often be found in the immediate vicinity of such sections of the road as have previously been surveyed by the police. It is fair to assume that the local authorities select those parts of the road whereon, if the legal rate be exceeded, greater danger to the public is to be apprehended than on other parts.

I suggest that the users of all the other principal highways fifty miles out of London should be protected similarly to those of the Brighton Road. The cost of providing such protective measures is very heavy on one individual or concern, but the *pro rata* charge on London motorists would be almost inappreciable.

A WILLING HELPER.

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Diamond
Wrapped Tread Construction
AND NOTHING ELSE WANTED

"THE ONLY ONES"

Have used all kinds of auto tires, mechanically fastened and clincher and find that Diamond wrapped tread tires are the only ones that give perfect satisfaction.

LETCHER AUTO CO.
4-20-05 SAN FRANCISCO

5000 MILES— CONDITION PERFECT

Have run a set of Diamond wrapped tread tires 5000 miles demonstrating and they are in perfect condition today.

A. P. WORTHINGTON
4-27-05 LOS ANGELES

CHANGED RIMS

No trouble with Diamond wrapped tread tires. A few customers demanded other equipment but soon changed rims and put on Diamond clinchers.

PACIFIC MOTOR CAR CO.
4-21-05 SAN FRANCISCO

WHEN OTHERS FAIL

I use Diamond wrapped tread tires and find that they are the only ones that will stand up in the rent service.

PARK AUTO CO.
4-21-05 SAN FRANCISCO

THE CALIFORNIA VERDICT

is founded on as much actual experience as the East will have had by August.



It is variously expressed but it all sums up.

"THE BEST TIRE MADE"

We conscientiously recommend Diamond wrapped treads to all our customers as the best tires made.

ANGELES GARAGE
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OTHER TIRES REFUSED

With over eighty sets Diamond wrapped tread tires on cars of our customers we have yet to receive first complaint. Other equipment will not be accepted by customers.

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Our experience based on the use of Diamond and all other tires is that Diamond are far superior to any other.

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THE BEST MOTOR TIRES IN THE WORLD

SEND FOR OUR BOOK, "THE CARE OF MOTOR TIRES," FREE.

The Diamond Rubber Co.

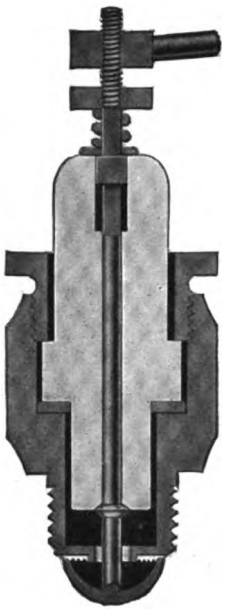
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NEW YORK, 1717 Broadway
BOSTON, 174 Columbus Avenue
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BUFFALO, 715 Main Street
ST. LOUIS, 3966 Olive Street
DETROIT, 810 Woodward Avenue

AKRON, OHIO

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CHICAGO, 1241 Michigan Avenue
MINNEAPOLIS, 611 First Avenue S.
SAN FRANCISCO, 608 Mission Street
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The Plug of No Trouble



Section view of The LUTHI PLUG showing construction

You merely have to put a

LUTHI PLUG

into the cylinder and leave it there. It gives no trouble—it will clean itself, spark when sooted, not crack when hot. It is absolutely **the plug of no trouble.**

The **Luthi Plug** is guaranteed, unbreakable, demountable, self-cleaning, gas-tight, cheapest in the end, will increase power, spark when sooted, and will not crack when hot. Sent by mail on receipt of price—$2.25 each. Made in three threads—French, 18 and 24 mm.; American, one-half inch.

DECAUVILLE AUTOMOBILE CO.
Sole American Agents

DEPOTS

1684 BROADWAY, NEW YORK CITY
733 BOYLSTON STREET, BOSTON

"We find the

Soot-Proof Spark Plugs

give better satisfaction than any plug we have sold during the year," writes a Pittsburg dealer.

That is the "Soot-Proof" story all along the line—satisfaction, satisfaction, satisfaction! Of course it satisfies because it is actually soot-proof, never short circuits.

"The spark always jumps"

No oil can form across the gap. There are two air-gaps, tight joints, simple parts, easily replaced when necessary, and I guarantee the "Soot-Proof" for six months of ten hours a day.

All sizes by mail or dealers, $2. Write for booklet.

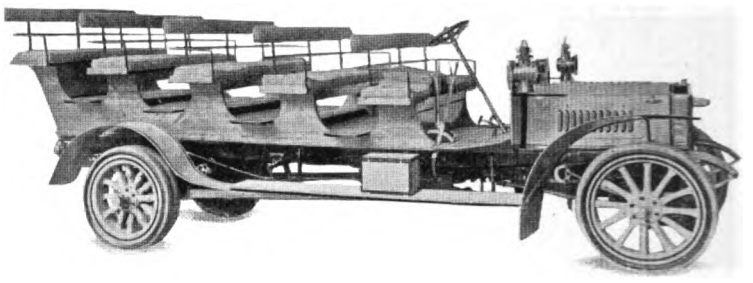
C. A. Mezger 203 West 80th Street New York

THE MOTOR 'BUS vs. THE ELECTRIC CAR

(Continued from page 35)

civilized highways, advancement in these is sure to keep pace with that in vehicles for traversing them.

In the United States, where roads and streets average worse than in Europe, and electric-traction interests are more numerous and more strongly intrenched, less progress has been made by the motor omnibus. Nevertheless, there are many cities in the United States, both small and large, in which the present inefficient and unprofitable street-car service—with its rails and wires as much a public nuisance as a public benefit—could with advantage be replaced by motor-omnibus service, which



A 'TERRACE" BODY "SIGHTSEEING" OMNIBUS

would be perfectly flexible and adjustable to all conditions of traffic in every direction, which would give no evidence of its existence except during the moment one of the vehicles might be passing, and which would return a large profit to its enterprising backers.

Already the tremendous increase in so-called sightseeing vehicles in the large cities of the United States has become a handwriting on the wall that is giving the street-car magnate no small concern. These "sightseeing" vehicles transport street-car loads of people in comfort and with certainty, are safe and of good speed, and it is only a short step, and a simple and logical one, to run more of them, carry more people, charge a lower fare, and make their purpose one of strict utility rather than of mere amusement.

In the matter of power equipment and mechanical details, the accepted motor omnibus varies somewhat. Most of the few used in the United States are electrics, using storage batteries, but the expensive maintenance of this type has led to the building of some gasoline-electric machines, in which a gasoline engine drives a dynamo, which in turn delivers electric current to motors that drive the wheels.

Abroad, the gasoline omnibus has proved the most successful type, though it is close pressed by some steam vehicles. It would appear, however, that the many advantages of the gasoline engine show up as



A STEAM OMNIBUS OF AMERICAN MANUFACTURE

well in this field as in that of the longer-established pleasure and commercial vehicle.

A common type of gasoline public-service vehicle is one in which the motor is located beneath a bonnet in front, in quite the accepted manner, the only radical departures being the long chassis with its special body, and the provision of a much lower set of speeds than is used in high-speed vehicles. By this means, a 20 or 24-horsepower engine is made ample for the propulsion of a thirty or forty-passenger vehicle over good road surfaces, it being impossible, however—and unnecessary—to exceed a speed of fifteen or twenty miles an hour.

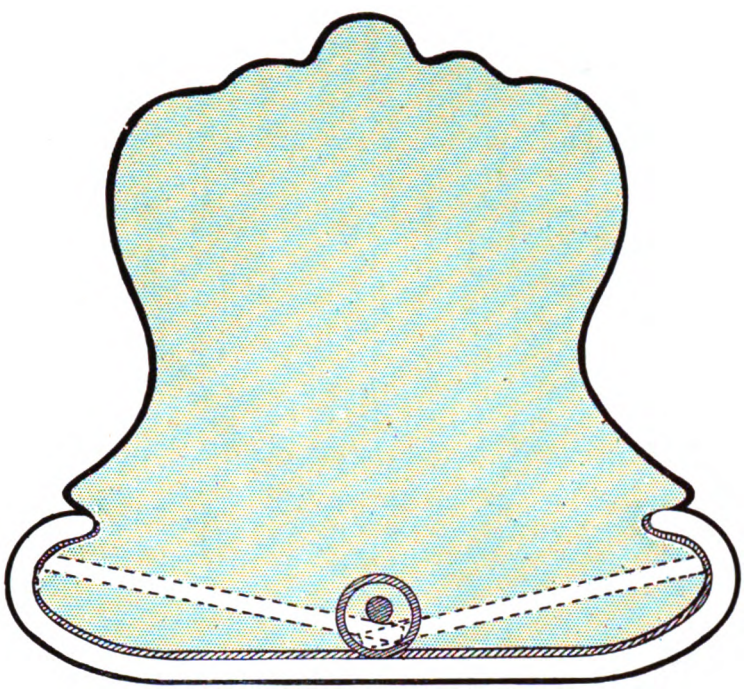
The body of the motor omnibus, though usually somewhat lighter, otherwise differs very little from that of the average street car. There is a tendency, though, to adopt the double-deck construction, with seats on the roof, which is a common feature of English street-railway cars. This affords a maixmum of carrying capacity with a minimum of vehicle weight, and in other ways is desirable. The seats on the roof are much favored in warm weather, and, by the provision of a light canopy, are very perfectly protected from rain and sun.

In the effort to reduce operating costs as much as possible with the motor omnibus, some concerns are building these vehicles with entrances at the front. In this way all passengers are forced to pass the driver, and can thus be compelled to pay their fares either as they enter or leave the car, without its being necessary to have a conductor or collector. The most practical plan seems to be the provision of a cash box conveniently located, with a fare register in some way attached to it, so that when a passenger deposits a coin or ticket it is recorded automatically.

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An Absolutely Dependable Tire



To Eliminate All Element of Chance

THEN BUY A "SWINEHART"

The Swinehart Clincher Tire and Rubber Co.

Write for new catalogue

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THERE'S POWER IN IT!



If additional Power were all the benefit gained by using

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it would only appeal to those who desired more speed—but it has other advantages unknown to Gasoline Users, which you should avail yourself of if you wish to get all the pleasure possible out of your automobile.

There's no offensive smell—it's absolutely uniform and **leaves no carbon deposit.**

Aren't you interested? Then presuming you are, and anxious to use a better fuel than Gasoline, let's send you a trial order or ask your Dealer to supply you—you'll be wonderfully pleased with the results obtained—yet you'll pay no more because you'll use so much less.

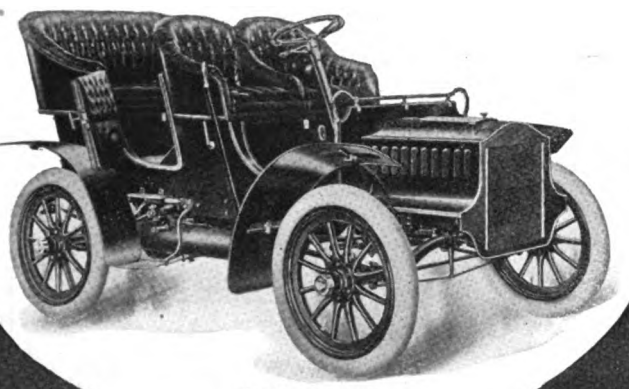
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Geo. P. Moore Co., 323 Van Ness Ave., San Francisco, Cal., Pacific Coast Representatives.

DEALERS—You should get the exclusive sale of this marvelous product.

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Model F, $950,
f. o. b. Detroit

Power Economy

Cadillac construction is so simple—so closely does it approach absolute perfection—that practically all energy the motor develops is used as an actual *propelling force.* This principle of economizing power—and hence *minimizing the cost of maintenance*—is the chief feature of Cadillac superiority.

CADILLAC

economy, coupled with unfailing reliability, has placed the "Car that Climbs" in the front rank of motor vehicles. Of all automobiles it comes nearest to being actually *trouble-proof.*

You would be interested in our beautiful catalog—still more interested in seeing and trying a Cadillac at the nearest dealer. Write for booklet "S" and the dealer's address.

Model F—Side-Entrance Touring Car, shown above, $950

Model B—Touring Car, with detachable Tonneau, $900

Model E—Light, stylish, powerful Runabout, divided seat, $750

Model D—Four-Cylinder, 30 h. p. Touring Car, $2,800

All prices f. o. b. Detroit

Cadillac Automobile Co.

Detroit, Mich.

Member A. L. A. M.

THE SOCIETY FOLK WHO MOTOR

(Continued from page 51)

Mildred, sailed on the thirteenth day of the merry month of May for a motor trip through England and Scotland. Mr. Van Schaick will return in advance of his wife and daughter, and they, following his departure, will take a trip to see the romantic chateaux-of-the-Loire country and over the roads in Switzerland that E. H. Harriman, the motorist, knows so well. For many of the most romantic of these trips, motorists exploring the old-world region are taking over American cars. Mr. Colgate Hoyt, as a shining example, took his new Pope-Toledo, when he sailed this spring, and also an American chauffeur, all, including his wife and children, sailing by the same steamer for Belgium. Starting from Antwerp, they made a tour of King Leopold's country and then journeyed on to France and Italy. From Ostend, Mr. Hoyt expected to make a long run to Paris, and from there to Genoa, and on to Monte Carlo. Mr. Hoyt's recreation is in the pleasurable transportation by motor car, but the kind of transportation represented by great railways has been his chief business interest. He was born in Cleveland, and at the age of thirty-three was made government director of the Union Pacific. Since then he has been a director in several large railroad companies, and, like all great railroad men, he likes to get away from his tracks in a motor car. He is one of the most enthusiastic motorists among the governors of the Automobile Club of America. His wife, who was a Miss Sherman, shares his pleasure. John Sherman Hoyt, it will be remembered, married a daughter of Anson Phelps Stokes.

* * *

Early morning motor runs are popular. This is possible even for society, for the habit of horseback riding at break of dawn has been tried by others besides Helen Gould. The bluecoats are beginning to



Photograph by Alman

MISS BEATRICE KINNEY

Miss Kinney, the daughter of Mr. Francis S. Kinney, is one of the enthusiastic motorists identified with the Summer colony at Narragansett Pier

scratch their heads over the trite saying anent the early bird and the worm. Not long ago, Mr. George Winthrop Sands, early in the morning, drove his Pierce Arrow from Cedarhurst to Long Island City, a distance of twenty-five miles, in thirty-one minutes. George Winthrop has the true sporting blood. His father, who was Mrs. William K. Vanderbilt's first husband, was killed in the hunting field down on Long Island. As his mother is a daughter of the late Oliver Harriman, he is a nephew of the present Oliver, famed, for one thing, for the beauty of his wife.

* * *

Former Rear-Commodore Charlie Robinson bought a 40-horsepower Mercedes in Paris and has been using it for his journeys to the Lizard, where the yachts racing for the Kaiser's Cup are expected to be in sight about March twenty-eighth. As Charlie, who is always first at any sort of sport, including trap shooting, had charge of the bulletin service in regard to the race, this motor car was an important factor in the ocean contest. Edmund Randolph, who owns the "Apache," is as ardent a motorist as a yachtsman, and drives his Pope-Toledo car every other day from New York to the Westchester Country Club.

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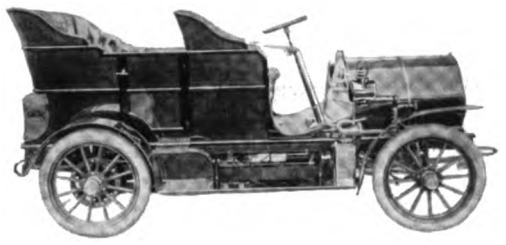
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GROUT—34 Seconds

This was the time of the Grout Car at Pecowsic Hill, at Springfield, Mass., on April 26th, beating the time of all sixty cars of American and foreign make, and of all powers. Is this not proof of the speed and hill climbing ability of the Grout?

BOSTON BRANCH
151-153 Columbus Ave.

M. M. WOOD CO.
308 Dearborn St., Chicago, Ill.

EASTERN AUTO CO.
306 W. 52d St., N. Y. City

GROUT BROS. AUTO CO., Orange, Mass.



Largest Makers of Auto Houses in America

"SPRINGFIELD" AUTO HOUSES

PORTABLE — SAVE STORAGE BILLS

No Carpenter required. Can be erected complete in two hours by unskilled help. Prices, $75.00 and up.

Portable Summer Cottages

Any size from 10x10 to 16x20. Neat, strong, inexpensive. Easily transported —just the thing for seashore or mountains. Write for new catalogue.

Springfield Moulding Works
52 Waltham Ave. Springfield, Mass.



WHEN you receive the car it is ready.

WHEN you want to get at the working parts you will appreciate our claims of accessibility.

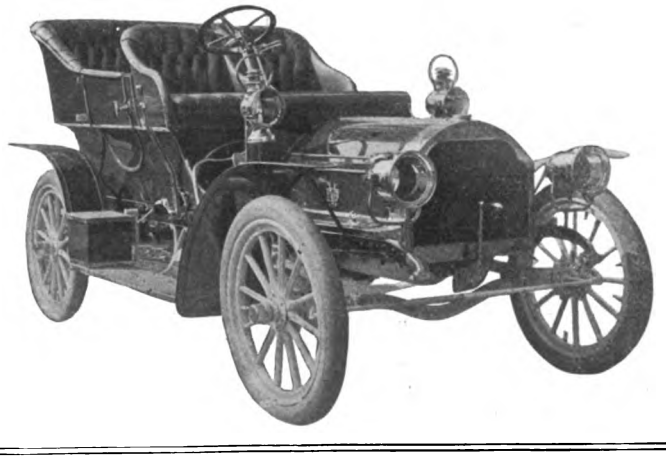
WHEN you climb a heavy grade you will find power to do it.

WHEN you want speed it is there.

WHEN you want to talk to your guests in the car you can do so—this is silence. And—

WHEN you see the "handsomest thing on wheels" (you can't hear it) put it down as a

STODDARD DAYTON



"As Good as It Looks" - $2,000.00 - "The Right Price"

Dayton Motor Car Co., Dayton, Ohio

Chicago: McDuffee Auto Co. Boston: Randliff Motor Car Co.
New York: Maxwell Briscoe, Inc.



"Maxwell"

16 H.P. Touring Car $1400

8 H.P. ourabout $750

LOW COST OF UP KEEP

The car that keeps repair bills down, not only makes new friends but keeps the old ones. The owner of a Maxwell does not have to live near a repair shop in order to get any use of his car; nor is he constantly confronted with the possibility of a long walk home. He has an automobile that he can absolutely rely on. The longer he has it the more he realizes that fact and the more he talks about it to his friends. Right there is the basis of the Maxwell popularity.

The "Maxwell" cars have no pump (thermo-syphon). Their double opposed motor is in front under the hood and accessible in every part. They have Bevel Gear Drive. **Metal Bodies.** Transmission Case and Crank Shaft cast in one Aluminum casting. **"Perfectly simple and simply perfect."**

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New York City Salesroom, 317-319 West 59th St.

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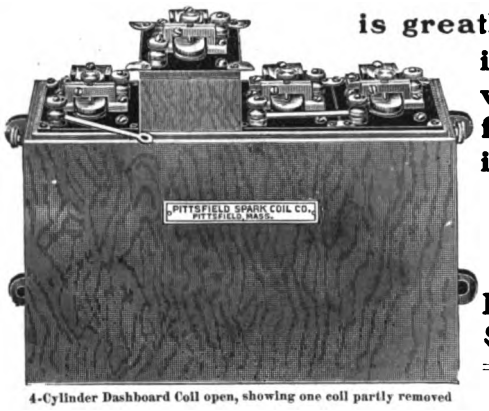
TARRYTOWN, NEW YORK

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MERIT HAS MADE OUR COILS POPULAR

NO LUCKY CHANCE ABOUT IT

The intrinsic value of your Car is greatly increased if it is equipped with the Pittsfield line of ignition goods.



4-Cylinder Dashboard Coil open, showing one coil partly removed

☞ A POSTAL CARD WILL BRING ALL PRINTED MATTER.

PITTSFIELD SPARK COIL CO.

Pittsfield, Mass.

THE "AMERICAN"

STORAGE BATTERY FOR IGNITION

— MONITOR TYPE —



VOLTAGE—4, 6 AND 8. CAPACITY—20 AMPERE—HOURS. PRICES—$6.00, $9.00, $12.00. OTHER STYLES—$2.25 to $32.00.

CATALOGUES ON REQUEST. ESTABLISHED 1889.

AMERICAN BATTERY COMPANY

162 SOUTH CLINTON ST., CHICAGO, ILL.

"Whitney" Chains

have been adopted for most of the Leading American Cars



THE WHITNEY MFG. CO.

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McGiehan Dasbboard Odometers



MODEL B

McGiehan Odometers are absolutely accurate, compact, handsome and substantial in appearance, figures plain and readable, and moderate in price.

Two different styles, Models "A" and "B," illustrated and described fully in our new catalogue

Equip your car now for coming season.

McGiehan Odometer and Mfg. Co.

137 West 32nd Street, New York

Branch, No. 1461 Michigan Boulevard, Chicago, Ill.

Philadelphia Branch, Room 970, Drexel Building.

MOTOR MEANDERINGS IN CALIFORNIA

(Continued from page 38)

from town to-day, which states that the Pacific Motor Car Company wants me to act as guide for a four-cylinder Packard that is to make a night-and-day run from Los Angeles to San Francisco, so you may have to guide the St. Louis back yourself. However, I'll let you know about it later. Yours, HOUSTON.

LOS ANGELES, Cal., March 19, 1905.

My Dear Ed.:

I am tired after this 118-mile trip to-day, but thought I would sit down after dinner and drop you a line, knowing how interested you would be in the successful culmination of this 500-and-some-odd-mile tour. We raced here in good shape with no troubles, and feel supremely satisfied with ourselves and the good old Red Raven. There is nothing like the latter, and I believe we'll have it framed when we get back to town. It certainly deserves it for its staunchness and reliability on this route.

The road was variable to-day with two exacting grades—Casitas and Canejo Passes—to cover. Any car of adequate power will have no difficulty in surmounting all the obstacles of the trip from start to finish. There was very little of special interest to be seen en route, but all the country that we passed through was generally pleasant and inviting. The mountain scenery was grand in places, with gushing brooks far down below us, and the hillsides flossed with the fragrant



IN CALIFORNIA THE ROADS ARE NOT ALWAYS HILLY

bay trees and crooked manzanitas, while the buckeye trees were flooded with blossoms, suggesting the snows of the Ohio winters as we looked upon their crests from the rising cañon roads. The trip has been more than the most flowery fancy could picture, and its charms will linger with me for good and all time. You certainly have a treat before you when you take the Raven homeward over the byways and highways that we have just covered. I have decided to accede to the Packer people's wishes, and shall leave soon on the record run. If it were not for the fact that they have set their hearts so fully, I believe that I would refuse the onerous duties and jog slowly home with you people.

To-morrow we are going down to Ocean Park, 18 miles from here, for a swim in its ideal surf, and for dinner at the Casino. There are hundreds of acceptable drives from this city as a center, and eastern tourists have realized this feature so generally as to bring their motor cars out with them for either the winter or the summer. I asked one of the residents here what he did for a living, and he answered quickly, "You tourists." But that is not generally true, since the latter receive the best of care and are showered with courtesies and attentions, which make their stay most pleasant. Hurry up and join us.

Yours for a rest, HOUSTON.

P.S.—Just received your wire. This will reach you just before you leave on the Owl. Glad you take that train as it is the best on all the roads. Be sure you meet us here. I look forward with great interest to showing you the beauties of this country. Have planned a trip to Pasadena and Riverside for the two days after you get here, so do not disappoint us. H.

THE MOTOR AS A LOCOMOTIVE AUXILIARY

Whilst the New York Central Railroad authorities are pinning their faith to electricity as the motive power for their system, the Union Pacific Railroad, which has problems to solve differing from the Central's, are carrying out exhaustive experiments with the gasoline motor. Their latest venture will be watched with wide interest all over the country. They have just turned out a motor capable of hauling two heavy passenger cars over moderate grades, and, after operating it between Omaha and Portland, Ore., they will despatch it on an ocean-to-ocean tour over their own and other lines, via San Francisco, Los Angeles, New Orleans, St. Louis, and Chicago to New York. The results will be fruitful and, if entirely satisfactory, will have solved for the world a far-reaching problem.

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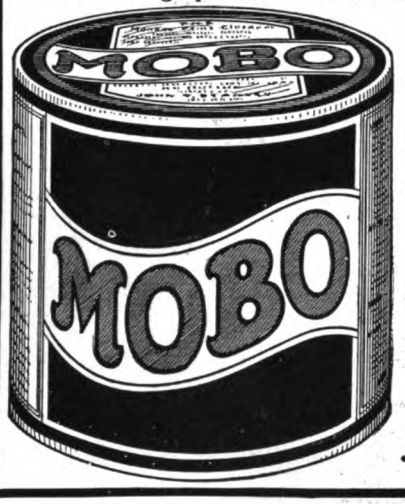
The Care *of the* Car

Washing the body of the machine, keeping the polished surface free from lubricator, road dust and gutter muck is just as essential to the life of an Automobile, as is the attention given the running gear.

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MOBO

is unlike common soap, as it positively contains no free alkali. Being a preservative as well as a cleanser, it prevents varnish or paint from peeling or cracking, and adds a fine gloss to the surface.



Mobo may be used with profit on leather goods, harness or woolen fabrics. Cannot harm the most sensitive skin, as it is a purely vegetable oil preparation and absolutely contains no free alkali. Put up in 2-lb. and 8-lb. cans; also in tubs, half barrels and barrels.

If your supply man does not keep *Mobo*, send us his name and address, and we will see your wants are supplied.

JOHN T. STANLEY
New York.

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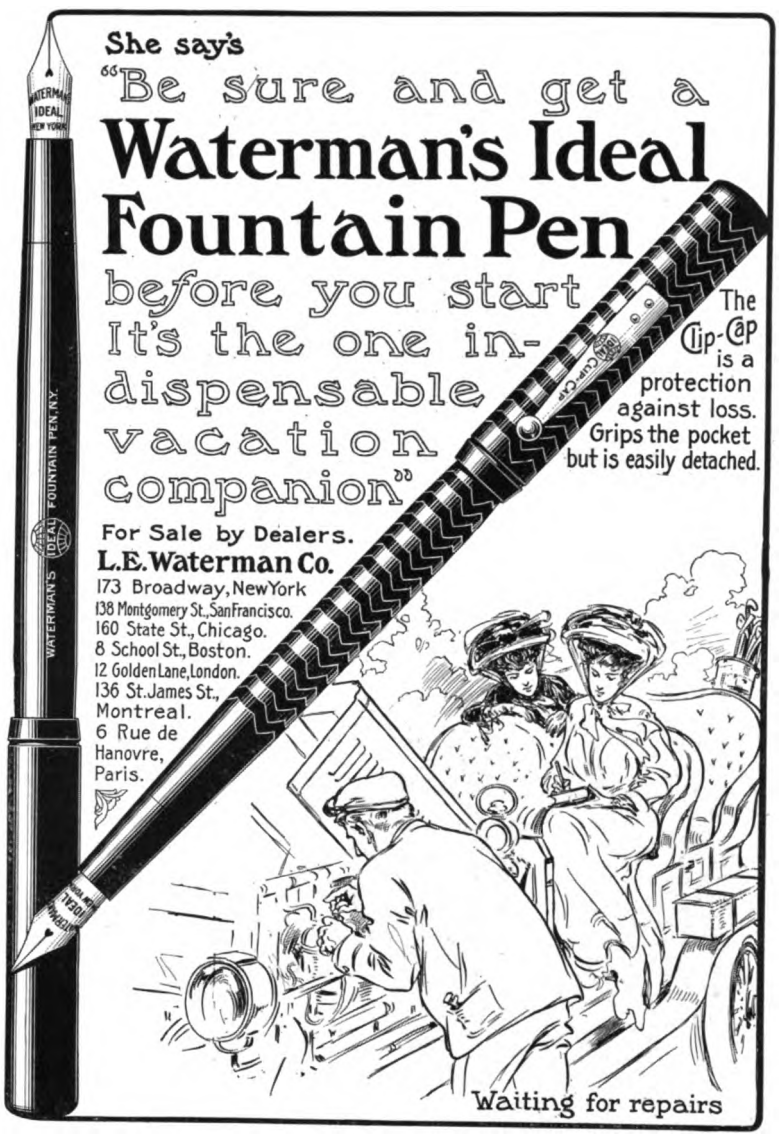
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It's the one indispensable vacation companion"

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For your summer outing. Situated in the Otsego Hills, where the altitude is high, the air cool and bracing, the outdoor life delightful; for those suffering from gout, rheumatism and nervous diseases the sulphur baths and springs are the most efficacious in the world.

A beautifully illustrated book of 128 pages describing these and other resorts along the Lackawanna Railroad, and containing a fascinating love story, entitled "A Paper Proposal," sent for 10 cents in stamps. The edition is limited. Write for a copy to-day to T. W LEE, General Passenger Agent, Lackawanna Railroad, New York City.

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Auto and Cycle Tire Manufacturers

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Solid Rubber
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The greatest tire man's ingenuity ever produced.

The tire that solves the most vexing problem now presented to both the manufacturer and private owner of automobiles.

It cannot PUNCTURE. Perfectly RESILIENT, and saves one-third the power now expended on other tires. Fits regular Single and Clincher rims. Easily applied.

Adopt our tire and save annoyance and expense.

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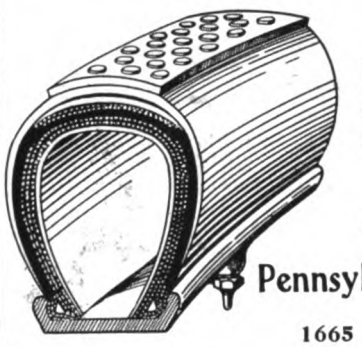
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Resilient, Safe, Comfortable,
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Do not throw away tires that are worn; put on Leather Non-Skid Treads and get as much if not more mileage than out of the new tire.

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Send us your tires and tubes for repairs.

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ABSOLUTELY RELIABLE TIRES
"Newmastic"
SINGLE TUBE and DETACHABLE TIRES
MADE PUNCTURE PROOF
It is no new experiment but has been in actual use for three years, and has been proven successful
Write us
Newmastic Tire Co.,
ST. LOUIS CHICAGO

THE ORPHANS' MOTOR PARADE

Apropos of the motor-car parades which we have been having recently in various parts of the country, New York City will see a motor parade of unique character on June 7. The New York Motor Club proposes to give hundreds of the young inmates of orphan asylums in the metropolitan district a glorious day's outing such as



the youngsters have in all probability never experienced before. The parade—as this outing is termed—will start about 9 a.m. and go to Coney Island, where the children will have a little of "old Coney's" fun and return at 6 p.m.

The accompanying pictures are taken of a little preliminary parade of the orphans, and, from the way in which the children enjoyed



their brief taste of motoring, it may readily be expected that they will verge on hysterical joy when the real crux of the parade occurs on June 7.

The Motor Club had six cars in line which were driven to an orphan asylum in upper New York City, and gave several score of the youngsters—boys and girls—a hearty, though brief, good time. A vociferous though well-trained band, part of which was put into one of the cars, which, at the head of the line, attracted enough attention to line the streets with onlookers wherever the little parade went. This

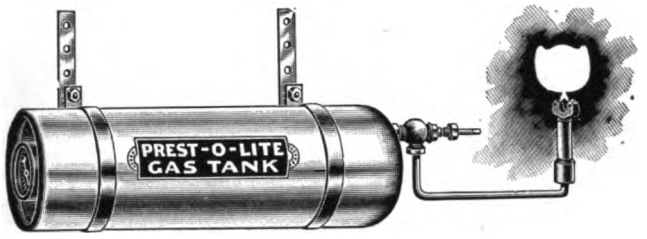


same band, together with those of several other institutions, will be a part of the real parade on June 7.

The New York Motor Club intends to have in line over 600 motor cars and estimate that they will be able to accommodate fully 5,000 orphans from about twenty institutions. If all goes well in this orphans' day parade, the club will arrange for other like festive occasions for the little ones who are not so well favored in the way of the world's pleasures as the majority of children, and it expects to be able to give the poor waifs of the "East Side" an outing, such as is only to be enjoyed at present by few.

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You Will Never Know What Satisfactory Lights Are Until You Use the



$35.00 **$35.00**

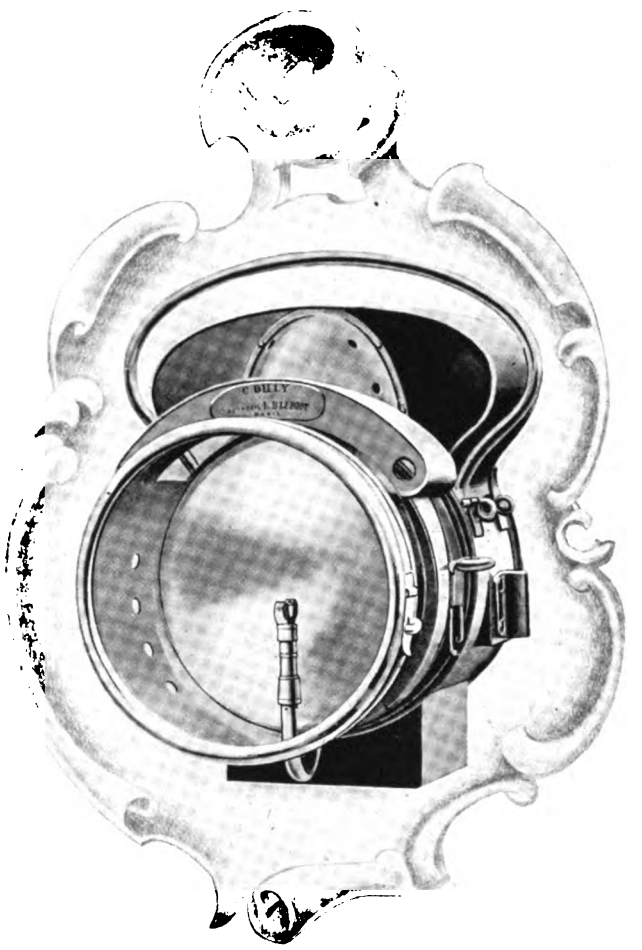
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Dash Clocks	$1.75	License Hangers	$1.00
Hydrometers	.40	Chain Repair Tools	.40
Ampere or Volt Meters	2.50	Dagon Horns, 6½ in. bell with screen and tube	8.00
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Standard Jacks	4.00	Four Glass Goggles	1.50
Searles Folding Jacks	2.50	"Golden Stag" Spark Plugs	1.50
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in beauty and luxuriousness, with smooth, still engines whose loudest sound is a subdued hum — all we ask is that you submit them to the most severe and trying tests. :: :: :: :: :: :: :: :: :: You will of course want the catalogue as a preliminary, but we would suggest that you get in touch with our agent at once. :: :: :: :: :: :: ::

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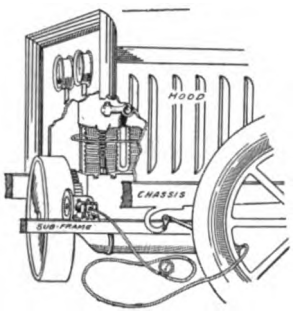
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is designed to furnish POWER pressure for inflating tires, instead of the old, laborious way, thereby lengthening the life of the tires, and saving time, money and trouble.

Light—Compact—Indestructible



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is easily attached to the front of any car. Once attached, always in place. Started and stopped by simply turning a thumb-screw. Nothing to do but watch the gauge, and stop when proper pressure is obtained.

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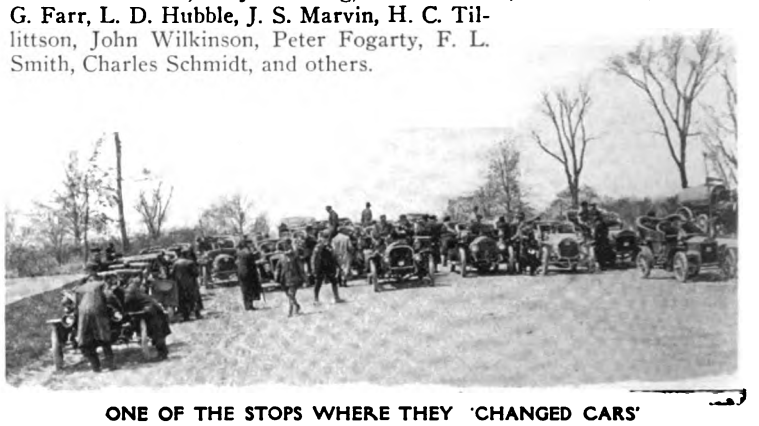
D. G. EDWARDS,
Passenger Traffic Manager, Cincinnati.

THE ENGINEERS' RUN

The Association of Licensed Automobile Manufacturers held a run on Friday, May 5, from Broadway and Seventy-sixth Street, New York, to the clubhouse of the New York Athletic Club on Travers Island, to the Larchmont Yacht Club, through White Plains, Elmsford, Ardsley, and back to New York by way of Dobbs Ferry, Yonkers, and Van Cortlandt Park. There were twenty-three cars of various makes, and the passengers were the engineers and designers of the various manufacturing concerns. Among the "brains of motor-car making" thus represented were: F. B. Stearns, C. R. Mabley, W. H. H. Hutton, A. E. Rainey, A. M. Day, A. A. Post, Hiram P. Maxim, Charles Clifton, Elwood Haynes, Charles T. Fletcher, S. T. Davis, Jr., George H. Day, Howard E. Coffin, M. J. Budlong, H. W. Aldew, R. M. Beck, Herman G. Farr, L. D. Hubble, J. S. Marvin, H. C. Tillittson, John Wilkinson, Peter Fogarty, F. L. Smith, Charles Schmidt, and others.



THE MEN WHO MAKE MOTOR CARS



ONE OF THE STOPS WHERE THEY 'CHANGED CARS'

The object of the run was to afford the engineers and designers of motor cars an opportunity to study the individual features and running of their competitors' cars. To give them the chance to make their observations at close range, they "changed cars" at stated intervals along the route. Each man had ridden in upwards of ten different cars by the time that the run was over.



A HALT FOR REFRESHMENT

That the run was a success in every respect was well attested by the unanimous agreement to repeat it next year. In this way, it is certain that the men who are the brains of motor-car construction will derive much good from close touch with the work of their fellows.

A PROGRESSIVE ATTORNEY-GENERAL

The attorney general of Wisconsin, in an opinion rendered to George H. Raymer, of Madison, Wis., declares that all bills to license and number automobiles are in violation of the constitution.

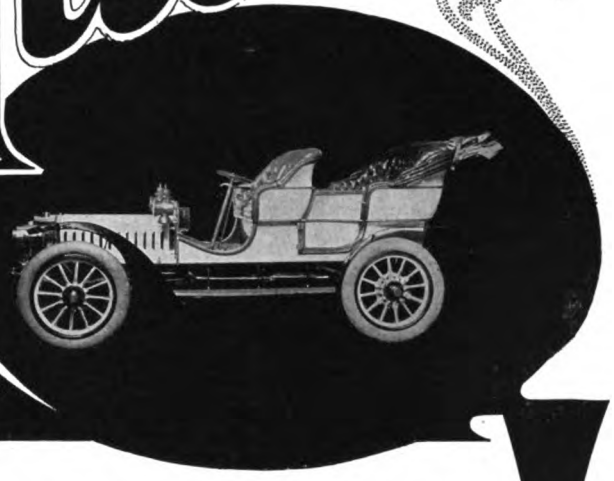
The attorney general contends that, under the constitution, a highway is a public way for the use of the public in general, for passage and traffic without distinction.

This advanced view would form the basis for interesting legal battles if motoring patriots would put the registration laws of the different states to the test.

The opinion is merely a further confirmation of the old common law usage which holds that highways are open to unrestricted use of vehicles of any form whatever, provided they be not of themselves a menace to pedestrians. There is no obvious reason why there should be discrimination against any kind of vehicle in favor of another.

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Austin



Four-cylinder, 5½-inch bore, 5-inch stroke, **50 H.P.** Weight, **2,500 lbs.** Price, **$3,500,** full extension top $150 extra. 108-inch wheel base, 36-inch wheels, 4½-inch tires, 44½-inch rear seat, bevel gear drive, direct on high speed. Our new sliding-gear transmission has **4 forward** speeds.

Austin Automobile Co.

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The Gilbert Tire Casings, Auto Leggings, Covers, Steering Knuckle Protectors, Tool Rolls, Etc.

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Charles E. Miller,

New York, N. Y.

Dear Sir:-

Replying to your letter of the first inquiring what success we have had with the Brampton chains we have secured from you, would say that the writer, personally, can hardly say too much in favor of the Brampton chain. Before I put this chain on my machine I used the #####, also the ##### and neither of these chains would last more than a few weeks on my car. I have run the Brampton now for quite a long while and it shows absolutely no signs of wearing.

The chains we have secured for othef parties in this town have given universal satisfaction.

Very truly yours,

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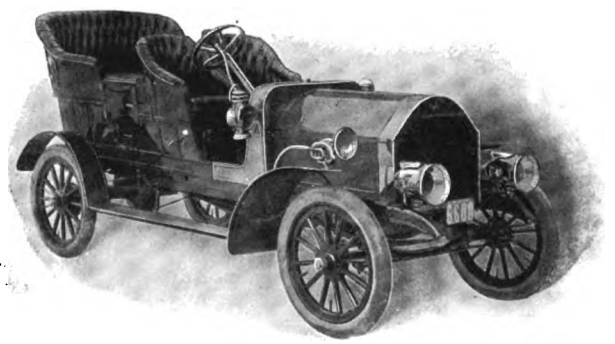
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A 40-45 H. P. 4-cylinder, 4-cycle engine, five passenger, side entrance, Gasoline Touring Car of the highest grade



WITHOUT

Starting Crank, Change Speed Gears, Clutch, Cams, Rocker Shafts, Tappets, Valve Gearing or Complications.

Every movement of the motive power and the car, from a state of absolute rest, forward at any speed or reverse, is controlled by one lever, operated either by hand or foot as preferred. Positively no other speed or movement controlling device of any kind on the car. Triple brakes—irreversible steering gear.

The Gas-au-lec is the Simplest Gasoline Car in the World

both as to construction and control, and the easiest to operate and control. **Not an Experiment, but a Success. Not a Freak, but a Practical Revolution.**

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Positively accurate. Tells grades to 40° up or down.

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Price, $3.00

Will give longer, louder blasts and outwear a dozen bells.

Make 30 other good selling auto specialties.

Free Electrotypes to Jobbers.

Know the luxury of travel.

Graham Supplementary Springs

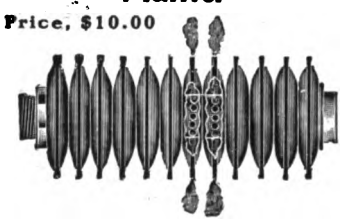
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$25.00 per Set

Fit any car.

Yankee Silent Automatic Muffler

Price, $10.00



Composed of 24 opposed discs. Radiators on end of exhaust pipe. Burnt gas discharged through thin outer edge of radiator. No back pressure, because point of discharge is greater than bore of exhaust pipe. Self-cleaning and noiseless.

Yankee Mica Spark Plug



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2 6½-inch Climax Searchlights

With Mirror Lens Reflector and Copper Front and Back

1 Highly Polished Dashboard Generator

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Automobile Supplies

24 Warren Street, New York

PASSING OF RACING CONTROL

Motor-car racing has passed through an evolution. Indeed if it had not been brought about as a matter of general occurrence, one would be justified in saying that it had passed through a revolution; for the Automobile Club of America has parted with the control of racing, and it has become vested in the American Automobile Association.

With the ending of the old régime, of course, there passed away its racing rules and the formulation of new ones to govern the racing of the coming season. All the i's of the new rules have not been dotted, nor all t's crossed, but the main basis of those formulated, after much time and thought given to their preparation by the Racing Board were approved by the Board of Directors on the 6th of April and the 4th of May.

It behooves all motorists desiring to enter into any contest in the coming season, to make themselves, at once, acquainted with the rules, copies of which can be obtained on application to the secretary, A. G. Batchelder, Room 612, Spalding Building, 31 West Forty-second Street, New York City.

Nothing heretofore in existence, either as a custom or a racing rule, or an interpretation thereof, can be taken for granted, and as any infraction of the new rules debars the offender from participation in any and all the awards for the event for which the infractor competed, we cannot lay too much stress upon the desirability of a careful study of the new rules, and a frank, open, and hearty compliance with them.

Let us illustrate, by a bye point, the wide difference between the old and the new conditions. In the old time a friendly wager was by no means a peril. At the most, the old authorities rely upon the very innocent, although rather ambiguous phrase "84. No cognizance is taken of betting," which might mean anything, and really meant nothing. Henceforth, wagers of all kinds are infractions, which will disqualify the offender from participation in any and all the awards for the event for which the infractor competes; and furthermore, he will be debarred from all future contests; for "the making or laying of bets or wagers shall not be permitted, recognized, or tolerated," and "No sanction shall be granted to a promoter of a race who shall have previously transgressed the rules; or permitted their transgression at a meeting under his management."

Through this dragnet it seems difficult for the offending owner, or promoter, to escape, and in the interests of true sportsmanship, it is to be hoped that all subterfuges will be frowned down.

Many other rules are equally significant of the need of careful personal study on the part of participants. Two only may be briefly mentioned, though they should be graven on the memory as never to be departed from, and their lucidity and brevity are beyond all commendation. One is the rules of the road, which says, "keep to the right when overtaken, keep to the left when overtaking; pass to the right when meeting a vehicle in the opposite direction." Drivers, whether on or off the tracks, should follow these rules until they become a habit so strong that the temptation to steal a march by sliding in and out, never arises.

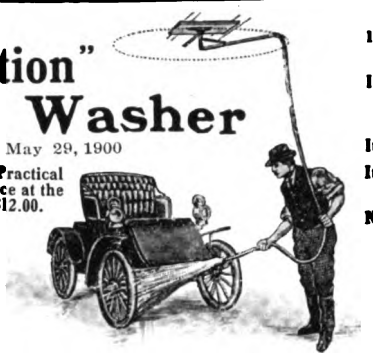
The second is that the warning approach must be by means of a horn or trumpet, or other instrument of like character, and never by bell or gong or any other substitute. The horn and trumpet have come to be recognized as the class signal of the motor car, just as the tinkling bells on the horse collars were of the old horse-drawn surface car. Too much stress cannot be laid on such seemingly unimportant details, for no factors are so important in avoiding street accidents as uniformity, and the breeding in the public mind of an almost automatic certainty that rules of the road will always be observed, and that the signal the pedestrian hears means exactly one thing and no other—the approach of a motor car. When the pedestrian gets this faith, he will seldom get caught unawares or be flustered, and accidents will materially decrease on our streets and public roads, and the mind of the average motorist will be relieved.



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"Perfection" Auto Washer
Pat. May 29, 1900

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It keeps the hose off the floor.

It gives free access to move vehicles in or out.

It is ball bearing.

It reaches the vehicle from all sides.

No heavy hose to drag — no vehicle to move.

IT NEVER WEARS OUT.

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The Powerful Searchlight

If your car is equipped with it others slow down to let you pass.
You can see around a corner with this light.

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"SHOW THE WAY"

If it's a "good enough" car, maybe a "good enough" lamp is good enough. Otherwise,—

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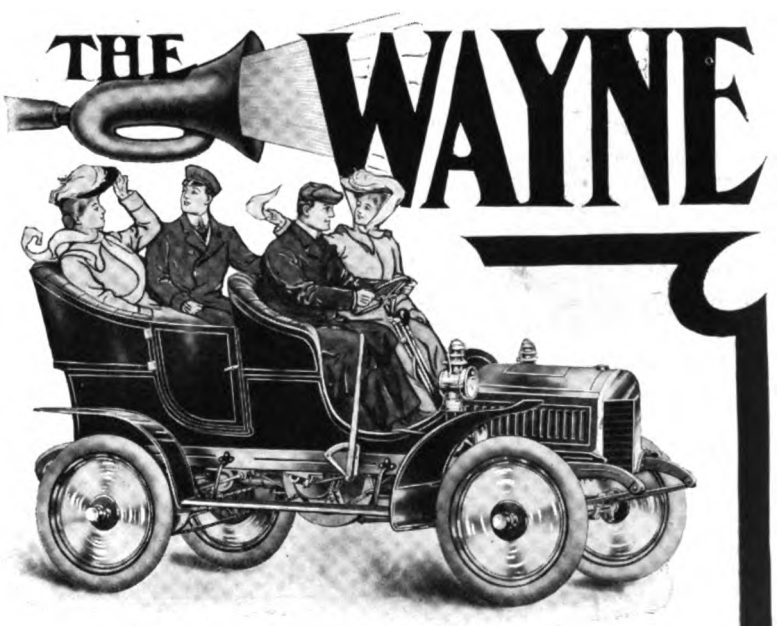


Saves two-thirds of your tire expense in addition to which you are all of the time absolutely protected against punctures and skidding, with no loss of resiliency.

A really wonderful invention to end all tire troubles. Fitted to old or new tires. Prices, etc., on request.

POST MFG. CO.
1908 BROADWAY (Near 63d St.) NEW YORK CITY

THE WAYNE



Model C, a Big Powerful Car for $1250.00

20 H. P., double opposed motor, cylinders 5¼x5, weight 1600 lbs. Wheel base, 90 inches.

Extract from the Detroit Journal, March 31st

"In his 1905 estimates, Park Commissioner Bolger asks an appropriation of $725 for the care and repair of his machine. The automobile cost $800. Up to date the city has spent $750 on it for repairs.

"Everyone knows that it costs about $60 a month to run an automobile and keep it in good repair," said Sec'y Hurlburt of the Park Board. "It cannot be done for less."

"While Secretary Hurlburt of the Park Board says that it costs $60 a month to run a machine, Street Commissioner Maybury's reports show that he has paid on an average only $30. The lowest he paid was $5."



Commissioner Maybury's Car is a WAYNE.
Commissioner Bolger's is NOT.

The Wayne Model B

(small cut) 4 cylinder (vertical) 24-28 H. P. motor, 102 inch wheel base, sliding gear transmission, $2000.

Write for catalogue.

Wayne Automobile Co.
Detroit, Mich.

New York Agency:
The Wayne Automobile Co., 1659 Broadway

Members American Motor Car Manufacturers' Association, Chicago.

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80 WEST 40TH ST., NEW YORK

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SPÉCIALTIÉS À LA CARTE
DÎNER TABLE D'HÔTE, $1.50
SUPPERS DELIGHTFULLY SERVED
Music and Singing by Troubadours

Private Dining-Room for Parties of four or more

Telephone 6046—38th St.



Forbidden Fruit

A New and Exquisite Cordial

A delicious blend of the juice of the finest selected Grape Fruit and the best old Cognac Fine Champagne.

At all Grocers, Cafes and Restaurants.

BUSTANOBY FRERES
80 West 40th St.
Distributers.



The New Southern

Michigan Boulevard and 13th Street, CHICAGO, ILL.

ALEX. DRYBURGH, Pres. and Mgr.

European Plan **Automobile Headquarters**

The **LENOX HOTEL**

IN BUFFALO



High-Grade Modern Construction . Fire-Proof throughout . European plan . Rates $1.50 per day and upward . Room reservations can be telegraphed at our expense.

George Duchscherer
PROPRIETOR

North St., at Delaware Ave.

THE STRATFORD

Corner Michigan and Jackson Boulevards

The AUTOMOBILISTS' Hotel of Chicago

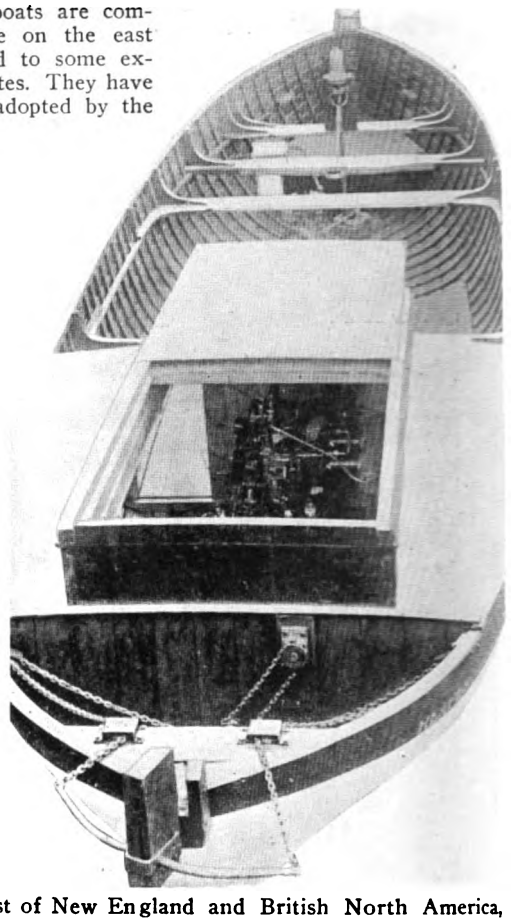
The Stratford is headquarters for the Automobile trade visiting Chicago
The place for you to stop
The Handsomest Dutch Grill Room in America

GEO. B. WEAVER



A MOTOR FISHING BOAT

The subject of the accompanying illustration is a typical fishing boat, propelled by a small gasoline engine, instead of by the more usual sail or oars. These boats are coming into common use on the east coast of England, and to some extent in the United States. They have been enthusiastically adopted by the professional fishermen, since they avoid the waste of time and uncertainty that necessarily are incident to more primitive means of boat propulsion, and thus do entirely away with the most uncertain factor in the fisherman's livelihood. Most of these boats are of the dory type, and, in their least expensive but by no means least efficient forms, are propelled by small, single-cylinder, two-cycle motors. It is freely predicted that the more general use of these craft that certainly is impending will do much to revive the great fisheries industry, which once was so important, but which in later years has died out, along the Atlantic coast of New England and British North America, and elsewhere.



HOW TO HANDLE GASOLINE

In spite of all the cautions that have been spoken and written on the subject, gasoline still is so carelessly handled by many that serious fires often are directly attributable to its misuse.

This being the case, there are a few elementary facts and precautions that always should be kept in mind by motorists and others.

Gasoline should be stored only in perfectly tight and tightly-covered tanks, away from any building of importance, or buried with the highest portion at least five feet underground.

Any spilled gasoline on a floor should be immediately wiped up, before it has a chance to soak in; and, if possible, cement or stone floors are to be provided instead of wood.

Leakage must be vigilantly guarded against, and immediately repaired when found. On no account is a faulty tank or connection, a dripping faucet or pump, or a poorly fitting cap or lid, to be tolerated longer than it takes to effect the promptest possible repair.

A current of air passing through repair shops, storage-rooms, etc., is desirable since the accumulation of explosive vapors is thus avoided. If such a current of air is impossible to arrange, as in winter time, the least that can be done is to air out the room whenever there is any chance for any vapor to have collected.

Only electric lights or regular miners' safety lamps are to be permitted for purposes of artificial illumination, and, especially in inspecting cars and tanks, this rule never should be violated. Likewise, the production of sparks by manipulation of ignition devices, or in the charging or testing of batteries, may be a source of danger. Even the hot gases issuing from the muffler of a car, the engine of which is run in a closed room, have been known to cause serious fires. It also is unwise to light the acetylene or oil lamps of cars while they are indoors.

Smoking, whether by employees or customers, should under no circumstances be tolerated in buildings wherein motor cars are handled.

Should a fire occur, never throw water upon it, since water will merely spatter the burning gasoline about, without the least tendency to extinguish it. The only way is to smother the fire, by the application of blankets or cloths, preferably wet, to keep them from burning, or by the use of sand, salt, or something similar.

Chemical fire extinguishers, which generate gases incapable of supporting combustion, are very efficient, and it is a wise plan always to have several of these conspicuously at hand.

In any case, if a fire occur, retain your presence of mind and act promptly. A fire that easily could be smothered with an old coat immediately after catching, may become a roaring conflagration if let burn for two or three minutes, and especially if it is permitted to communicate to oily waste, rubbish, or larger supplies of fuel than that concerned at its inception.

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Elmore

Twice as Effective

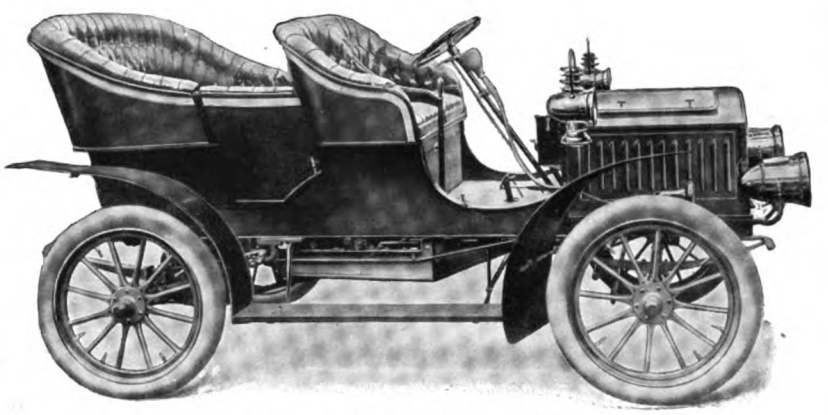
In a calm and critical description of the Elmore Pathfinder, which was written by an expert and appeared recently in the Toledo Blade, this statement was made:

"The Elmore Two-Cycle Gas Engine is twice as effective as the four-cycle motor; because the two-cycle works about half the total running time, while the four-cycle works about a quarter of the running time."

If you did not know and had never heard anything more about the Elmore Pathfinder than this, would it not be sufficient to make you investigate the car without delay?

If you do investigate, this question of constant torque alone will win your unequalled admiration and enthusiasm.

Send for our full line of literature, asking for group G, the booklet illustrating the 6,000 mile trip, our 1905 catalogue, and the opinions of people who have used our cars, all sent free upon request.



Elmore Pathfinder, 1905

THE ELMORE MFG. CO.

1204 Amanda Street, Clyde, Ohio

Members A. L. A. M.

PATHFINDER

"Matheson"

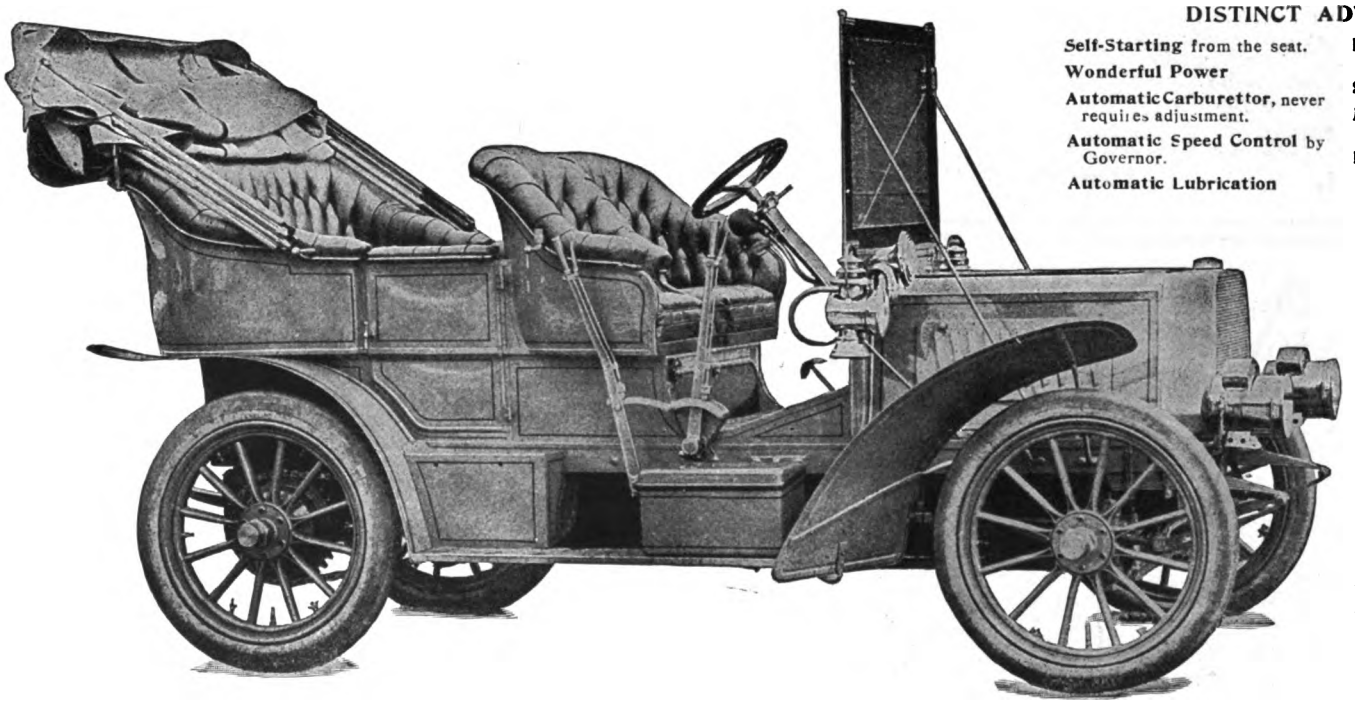
"America's Finest Motor Car"

24 H. P. $5,000. **40 H. P. $6,000**

Built to give at least 10 years' perfect service, the only car in the world with sufficient factors of safety in EVERY vital part, making driving absolutely safe, regardless of speed or conditions of roads.

At Eagle Rock, N. J., Hill Climbing Contest, Nov. 24, 1904, a regular stock "Matheson" 24-H. P. touring car (the *only* touring car that entered strictly fully equipped for touring) carrying baskets, lamps, extra parts, etc., and four passengers, made the hill in 2:21 4-5, defeating twenty seconds to nearly two minutes other touring cars entered ranging 24-H.P. to 40 H.P. and stripped of baskets, lamps, extras, etc. The hill is an even mile long, averages 12 per cent. its entire length and is 19 per cent. near the top. The "Matheson" 24-H.P. stock touring car made the run as above at the rate of nearly 26 miles an hour.

Why should the "Matheson" car defeat others of greater rated H.P. and less weight! The rated H.P. of every "Matheson" car is *guaranteed*.



DISTINCT ADVANTAGES

Self-Starting from the seat.
Wonderful Power
Automatic Carburettor, never requires adjustment.
Automatic Speed Control by Governor.
Automatic Lubrication

Individual Clutch Transmission
Single Lever Control
Make-and-Break Ignition with Magneto
Irreversible Steering Gear, Especially Powerful Brakes (four).
Roller Bearings all around.
Elastic Frame, Armored Type
Road Clearance of 12 ins.
Side Entrance, Aluminum Body.
Wheels 36 inch diameter making easy riding.
Wheel Base 106 inches.
Imported "Continental" Tires or option any American make.
Imported Honeycomb Radiator.
Long Life, easily ten years with normal service.
Practically Noiseless
Absence of Vibration
Extreme Simplicity
Liberal Factors of Safety in every vital part.

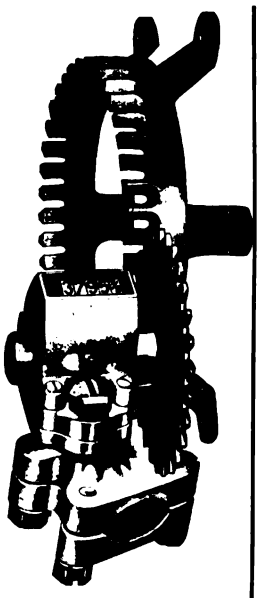
MATHESON MOTOR CAR CO., Holyoke, Mass.

N. Y. Agents: SHEPARD BROS., 500 5th Ave.

Member National Association of Automobile Manufacturers

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Veeder



VEEDER FORM B ODOMETER.

Price complete with attaching fixtures for your car, $10.00. This instrument attaches to the left front wheel of your car.

"It's nice to know
How far you go."

Veeder Odometers

It isn't the man that has just got his first car who is most enthusiastic about having a Veeder Odometer to show how many miles he goes. It is the men that have been driving cars ever since the game started who best appreciate Veeder Odometers and the service they give.

Here is A. L. Riker, for instance, an automobile engineer who probably knows as much about cars and the whole automobile situation in geheral as anyone in Europe or America. He is vice-president of the Locomobile Co., and has designed the new Gordon Bennett racer for that company. In writing us about Veeder Odometers he says:

"We consider that they are a very valuable accessory to a touring car, as they enable the owner to keep a record as to his tire mileage and also the distance the car has traveled during the season.

"I know that personally I would not run a car without an instrument of this character, and I think that the demand for a reliable instrument such as you have been making the past season will greatly increase."

The Veeder Form D Odometer for the dashboard has two registers, one of which may be set to zero at will, while the other keeps the total mileage. Price complete, ready to go on your dashboard, $25.00.

The Veeder Form B Odometer is shown in the illustration. See your dealer or write us for free booklet.

The Veeder Mfg. Co.

24 Sargeant St. ***Hartford, Conn.***

ROYAL HAMPERS

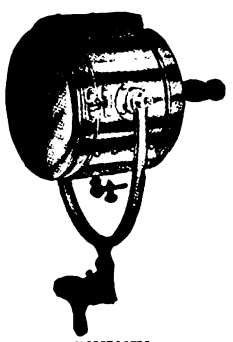


One of the beauties of getting Royal Hampers is that you get them promptly, and when you do get them they fit just as they should. This is because we have patterns for practically every car used in this country, and do not have to do any guess work.

Royal Hampers themselves are the finest, most stylish hampers on the market, being made of genuine, small-sized, German round reed, worked by experts. We will gladly send you our free catalog of Royal Hampers, showing the various styles and giving our special low prices. It will pay you to write us.

The Post & Lester Co.

34 Sargeant St. Hartford, Conn.



SWIVEL SEARCHLIGHT (Royal De Luxe)
Genuine Bausch & Lomb lens mirror. Front 7 inch diam. Quality the finest. Try lamp 10 days; if not satisfactory your money back.
Lamp catalog on request.

Save Money on Search-lights and Lamps!

It will pay you to write for our special prices. We can save you money.

The Post & Lester Co.

8 Day Imperial Motor Clock



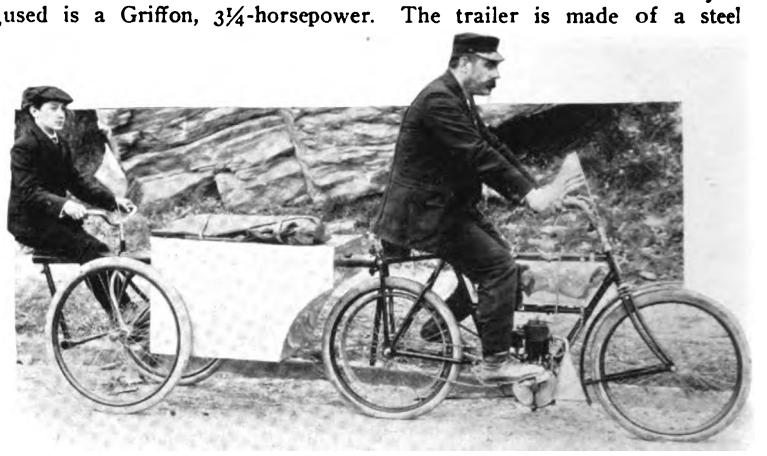
Only **$8.00** for Imperial 8-Day Clock, worth $15. Face 3½ inch, porcelain. Burnished brass, water-proof case. Guaranteed 1 year. Money back if you want it.

Returnable at our expense any time inside of 10 days from receipt.

34 Sargeant St., Hartford, Conn.

AN IRISH MOTORCYCLE TOUR

The accompanying illustration is of Mr. Frank Brierly, of New York, and his young son, who on the motorcycle-and-trailer combination intend to make a tour of Ireland this summer. The motorcycle used is a Griffon, 3¼-horsepower. The trailer is made of a steel



frame upon which is hung an aluminum box, which is to contain the traveling kit of the party.

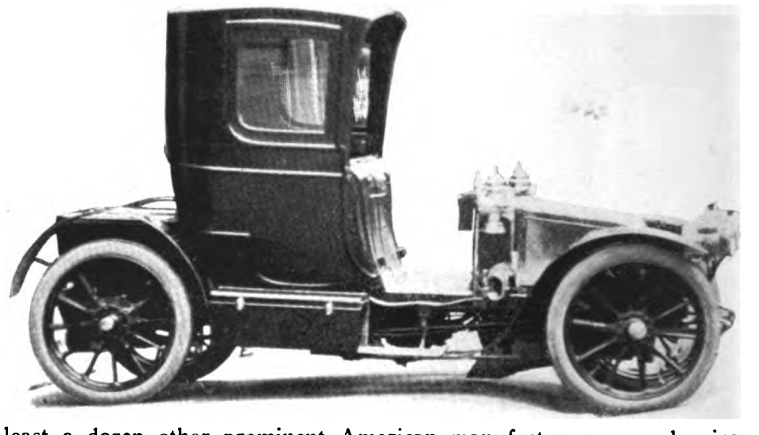
Mr. Brierly expects to cover every road that is "coverable" in Ireland and to bring back with him pictures of every section of the Emerald Isle that conditions will allow. He thinks his trip will take him about three or four months.

TWO INTERESTING CARS

The non-adjustable type of ball bearing, which was described at length in MOTOR for May, is commencing to find favor with American manufacturers. The Walter car, pictured herewith, was the first



American car to adopt it, and the results have been highly satisfactory. Besides the Walter, both the Speedway and the Lozier cars have adopted the new bearing, and it is known for a certainty that at



least a dozen other prominent American manufacturers are planning to follow European practice in this respect in their 1906 product.

An exceedingly novel body is that of a Renault car recently imported to this country by J. B. Trevor. This body, as is to be seen in the accompanying illustration, is in a way similar to that of an ordinary hansom cab. The distinctive feature, however, is that it is steered and controled from the inside, the occupants being most completely sheltered from the weather, and the car at the same time being very light in weight—much lighter than the ordinary enclosed-body car.

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Witherbee Storage Battery



"BUY THE BATTERY WITH A BEE"

Endorsed by the leading manufacturers
Sold by the leading jobbers

Descriptive pamphlet gladly furnished

WITHERBEE IGNITER CO.
31 THAMES ST.
NEW YORK CITY

The Witherbee Storage Battery was used by Mr. Wridgway in making his world's record.
Over 2,000,000 consecutive explesions without a miss.
Read Mr. Wridgway's endorsement and profit by his experience:

The Peerless Motor Car Company
of New York

New York, May 8, 1905.

Witherbee Igniter Co.,
27 Thames Street, City

Gentlemen:

I wish to express my entire satisfaction with the Witherbee Storage Battery Igniter as used by me in the thousand mile contest at Brighton Beach, on Friday and Saturday, May 5th and 6th, and congratulate you upon being able to produce a battery that is entirely satisfactory under the severest of tests; it did not miss one explosion during the whole run and the entire performance of the battery was most wonderful.

Yours truly,
Peerless Motor Car Co. of New York
(Signed) C. G. WRIDGWAY, Gen. Mgr.



Invest one penny and get dollars in return

Our 1905 Catalogue is now on press. Send us your name at once so we can add it to our mailing list.
It contains everything that is of interest to the motor car owner and dealer, and is the most complete volume on motor car accessories ever issued.

Send for Spring Catalogue.



THE EXCELSIOR SUPPLY CO.
233-235-237 RANDOLPH STREET
CHICAGO, ILL.

"A Hitching Post for the Auto"

THE HILL LOCK VALVE

Simply turn a key when leaving your motor car or motor boat and a valve on the gasolene supply pipe is closed and locked. The source of power is shut off until you return with the key and unlock the valve. During your absence your car or boat has been insured against theft—your gasolene against the borrower or thief—and the danger of fire or accident has been reduced to the minimum.

The Hill Lock Valve is the simplest contrivance in the world—just a valve that locks. It can be readily attached, in the most convenient place, to the supply pipe of any auto-car or auto-boat. The Hill Lock Valve should be on every motor car and motor boat because no other attachment can do what it will do, because its cost is insignificant compared with the services it performs, and because

We Send It On Approval

The price of the Hill Lock Valve is $5.00. On receipt of this amount we will send it to you promptly. Use the Valve two weeks—a month. If after that time you are not satisfied that it is indispensable, return it and we will promptly remit the purchase price. Order one at once—to-day. We have a special proposition to make to dealers and manufacturers.

THE THOMAS-TANTY CO.
No. 1 Madison Ave. - New York City

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"Wigwarm" Portable Garages for the smallest runabout to the largest touring car.

"Wigwarm" Portable Camps, all sizes and prices.

Send a two-cent stamp for eighty-page catalogue.

E. P. HODGSON, - Dover, Mass.

P. O. Box 112. Established 1892.

Do you get your hands dirty and greasy when motoring?

SKAT will make them clean—take off the grease quicker than lightning. It contains no harmful ingredients and can be used with or without water. It is acknowledged by all motorists to be the best hand soap known.

Send 15c. direct to Manufacturer for Trial Box

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AUTOMOBILE ROAD MAPS

Catalogue Free. GEO. H. WALKER & CO., 221 High St., Boston, Mass. Near Rowes Wharf.



1904

STA-RITE

"STAYS RIGHT THE LONGEST."

There were

TWICE AS MANY

"Sta-Rites" sold in 1904 as in 1903, and we were leaders in 1903, being the only exclusive exhibitor of plugs at the Chicago Automobile Show.

Dealers can make more money by handling our line exclusively, 23 sizes, $1.25 to $4.00. A new separable plug, ½", at $1.75. See that "Sta-Rite" is on the shell! Coils, gouges, etc.



1903

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ROBERT VOLT AMMETER

For Testing Batteries

GUARANTEED

Sample, including leather case, prepaid on receipt of $5.00 | 3 Volts 30 Amperes | Send for Catalog.

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65 SHELBY STREET, DETROIT, MICH.

SMALL STRONG QUICK

FULLY GUARANTEED



THE "ULTRA" COMPOUND PUMP
TWO PUMPS IN ONE
Easiest to Operate
Write for Catalogue
Ultra Pump & Power Co.
422 WATER ST., AUBURN, N. Y.



AUTO SCREW JACK

Powerful Ratchet Double-Acting Screw Jack

Easy to Operate Quickly Adjusted

No. 501 weighs 7 lbs., will lift 3000 lbs. and adjusts in height from 11 to 17 inches.

COVERT MFG. CO., - - Troy, N. Y.

RHODES

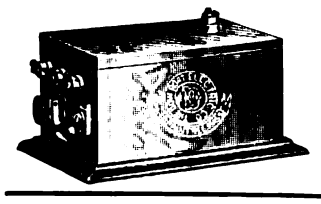
Clincher Tire Remover

(Pat. Pending)

The most necessary automobile tool on the market. Adjustable to any size tire. Finely nickel plated. Price, $2.00, postpaid.



Rhodes Mfg. Co., 425 W. Bridge St., Grand Rapids, Mich.



As an Efficient First-Class Spark Coil

The "DOW"

Has no Equal

For further information write to

THE DOW PORTABLE ELECTRIC CO.
Braintree, Mass., U. S. A

WHITE STEAMERS

1903 AND 1904 MODELS BROUGHT UP TO DATE

We furnish Fly Wheel for Engine, Powerful Metal to Metal Foot Brake, new Propeller Shaft, Change Speed and Disconnecting Gear, permitting engine to be run free for warming up and pumping water and air. Complete, ready for attachment. Can be put in place in a short time. Direct drive, with no gears in mesh on high speed. Satisfaction guaranteed. Fine machine work. Write for particulars.

FRONTIER MACHINE CO., Niagara Falls, N. Y.

BARGAINS IN SECOND-HAND MOTOR CARS

(Continued from page 34)

which it may cause practically occur only on cars that have been frequently subjected to such treatment as: fast driving on hard, rough ground; sudden application of brakes; slamming of gears; etc. Very high-class manufacturers obviate "fatigue" or "crystallization" by employing nickel-steel or chrome-steel in parts exposed to shock, but this is recent practice, not at all universal. The second-hand buyer best guards against "fatigue" by looking for the signs of abuse. These are very different from the signs of wear. In point of fact, they seldom will be found together. The man who wears his car out does not abuse it, and vice versa.

Crumpled mud guards or fenders are the most conspicuous signs indicating that a car has been handled by a reckless person. The rear fenders afford less positive evidence than the front ones, since any one may be run into from the rear. Bent fins on the radiator point to the same inference; also evidence of repairs to the radiator by soldering. One or more vehicle springs may have been replaced; this is an almost infallible sign of abuse, but only can be detected with certainty if the new spring has not been supplied by the manufacturer of the car; in that case the clip and the shackle bolts may vary slightly from the similar parts of the other springs. Sometimes the replacement may be told by the better condition of the varnish on the new spring. Warped spring clips indicate sudden stops oft repeated, and therefore abuse. Manufacturers learned long ago to make the steering knuckles out of tough material, so that lives should not be endangered, but the quality of toughness means that the piece will bend if subjected to an extraordinary strain. Such a strain occurs, for example, when the car at full speed strikes a big stone or a hole in the road. The immediate result is that the wheel which strikes "spreads." This is in itself a defect which produces bad steering. The bargain hunter should not only look sharply after the alinement of the front wheels, but examine the knuckles and front axle for evidence indicating that either the knuckle or the axle has ever been sprung and subsequently bent back, as near as possible, to its original position. As heat is required for this operation, the absence of paint or the presence of new paint is the sign to be looked for. The rods of the steering gear should be similarly inspected.

3. Having satisfied himself that the car has a fair reputation for quality and that it has been decently treated, the bargain seeker should take the trial trip, and this should include at least one long and steep hill, with close watching of the gear changes; also a run through crowded streets and some stops by means of the brakes on the level as well as on hills. Part of the route should be over cobblestones or other hard, rough ground. He should be present when the car is started with the motor cold, and also should insist on having the car and motor stopped and restarted on a hill, when the motor is hot after a climb. If possible, he should leave the car standing on a hillside, leaning both backward and sidewise for ten minutes or longer, and then have it started uphill—perhaps the gasoline will refuse to feed. If the motor has four cylinders, he should watch whether it will start, after a prolonged stop, by a quarter-turn of the crank. If the compression is good, it should. When going up grade, he should ask to have the spark advanced a little, and listen whether it causes the motor to "knock" or "thump." The sound is unmistakable.

The more of these observations he is permitted to make on the trial trip, the more his subsequent examination of details will be simplified. If everything comes off satisfactorily, all he will have to look for will be the extent of the nominal wear in the various parts of the machine. That he will consider the condition



WATERLESS KNOX

Pleasure and Commercial Cars

GEO. A. CRANE, Manager

KNOX AUTO-COMPANY, 1268 Michigan Ave., Chicago

'Phone, South 1189

Acme of Perfection

American made car of Foreign design.

FIVE MODELS

$800.00 to $2,750.00

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PARDEE-ULLMANN CO.

Dealers in High-Grade

MOTOR CARS

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'Phone, South 557 CHICAGO

PACKARD & WHITE

BAKER ELECTRIC

STOCKS - - BONDS

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301-304 N. Y. Life Bldg., Chicago

42 Broadway, New York.

Members of N. Y. Consolidated Stock Exchange.

DIRECT PRIVATE WIRES EAST

Send for our daily Market Letter.

GRAIN PROVISIONS

HARRY BRANSTETTER

Dealer in High Grade

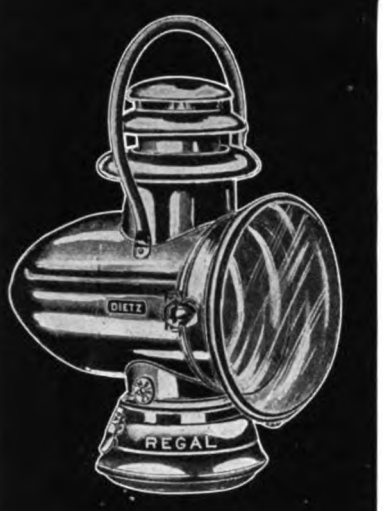
MOTOR CARS

ROYAL TOURIST AND MITCHELL

1466 MICHIGAN AVENUE

CHICAGO

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DIETZ REGAL BULLET LAMP

The handsomest lamp of this style on the market.

It is made with drawn body—top and bottom double seamed to body—perfectly shaped reflector drawn from heavy gauge aluminum. It is easily removable for cleaning.

AND REMEMBER

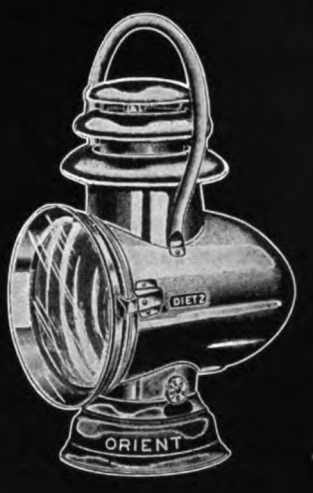
Dietz Bullet Lamps Burn

DIETZ ORIENT BULLET LAMP

Has the good qualities of the Regal Lamp but with a different oil pot and front door. It is just right for small cars.

AND REMEMBER

Dietz Bullet Lamps Burn



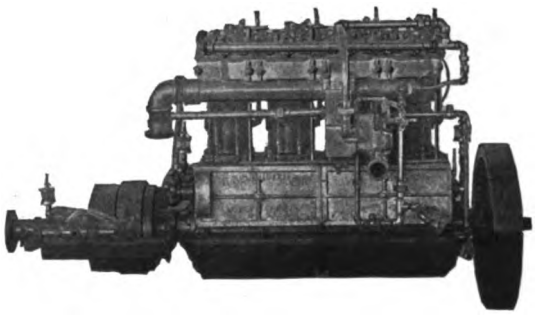
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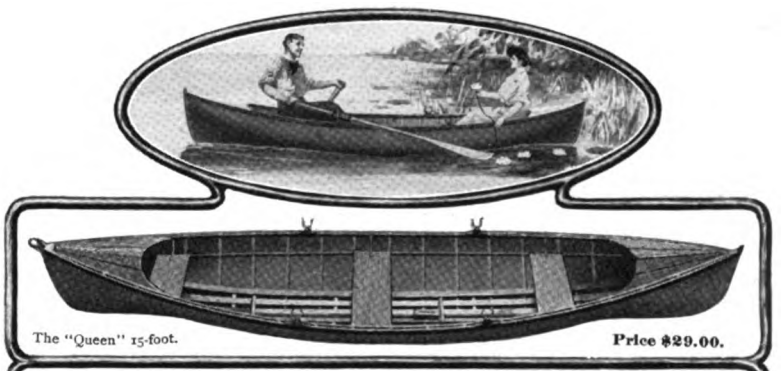
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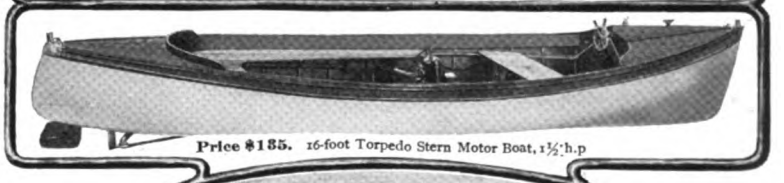
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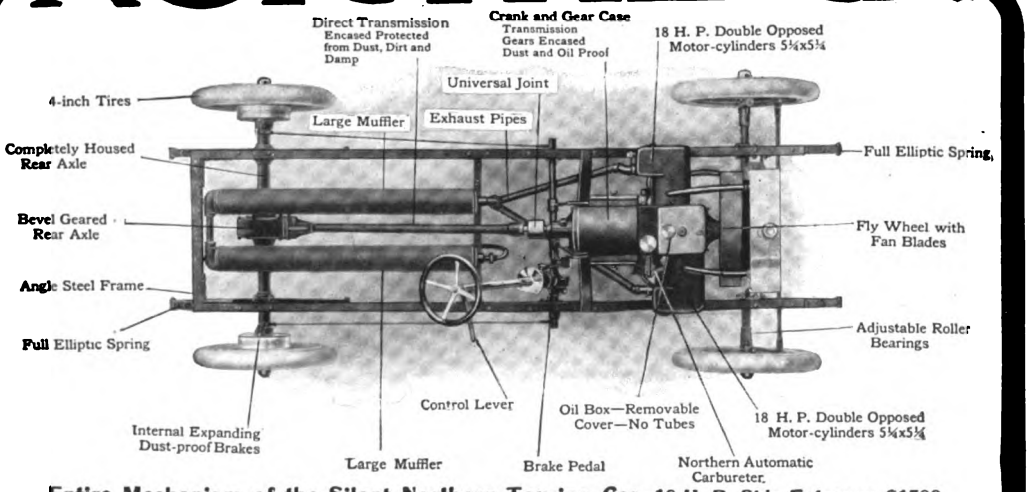
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Complications mean expense. Simplicity means economy. *Northern simplicity* means economy of power great strength, ease of control, and lowest cost for maintenance. Note the even distribution of weight. Rear axle supports principal weight of body and passengers. Front axle supports machinery. Each axle, each tire bears its proportionate share of the load. This is the *Northern idea* of construction—every part does its share, no excessive strain on any part. Choice of four bodies, all superbly finished and upholstered. Write for catalogue No. 13 which illustrates the complete *Northern line*, including the sturdy Northern 7 h. p. Runabout, $650.

Northern Manufacturing Company, Detroit, U. S. A.
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of the carriage body goes without saying; he need only be warned against considering it too much.

4. We now come to what may be termed the hard and fast rules for a layman's examination of motor-car "bargains." In formulating them, it has been considered that the seller's time is worth money and that some really good bargains are therefore offered on terms of "take it or leave it," with the trial cut down to a perfunctory spin "around the block." It also has been considered that it is not the most thorough method of examination, such as employed when a car is overhauled at a first-class factory, that should be recommended, but the quickest and least intricate, which will permit finishing the whole examination in half an hour. The time thus saved may be used very profitably in examining so many more of the vehicles which are offered.

Motor Shaft Bearings.—Those nearest the flywheel wear most rapidly. Have the clutch cone withdrawn from the flywheel (if such is the construction); then place a stout stick under flywheel and try to raise the latter. If you feel it give and hear a click of the shaft against the upper portion of the bearing, the time is ripe for new bushings, in default of which there soon will be troubles with the clutch and also with the connecting rod, besides some loss of power.

Connecting-Rod Bearings.—If the upper and lower bearings of the connecting rod each are worn 1-32 of an inch and the shaft bearings as much, the size of the combustion chamber will be increased about ⅛ of its original volume (by the piston failing to reach the limit of its travel), the compression will be correspondingly reduced, the piston stroke will be shortened somewhat, and the internal frictions will be sensibly increased; all of which means power reduction and rapidly progressive deterioration, with frequent overheating of the motor and of the lower connecting-rod bearings. The repair of the latter therefore is among the regularly-recurring expenses of motor-car maintenance. If replacement is necessary, the cost, for a four-cylinder car, runs up to between $50 and $100. On this expense the bargain seeker may figure if he hears the motor "thump" when the spark is advanced a little too much.

A car with magneto-jump-spark ignition (and no spark adjustment) will thump of its own accord when the condition requires readjustment; but no cars so equipped are as yet in the second-hand market.

Valves, Valve Stems and Springs, and Piston Rings.—If a car show satisfactory power and regularity of operation on the trial trip, there is no necessity for examining these parts. If, however, the car does not start well (usually an indication of failing compression, so long as the gas mixture has once been properly adjusted) or requires the low gear on a slight up grade, the layman's best course is to require that the condition should be remedied before further steps are taken.

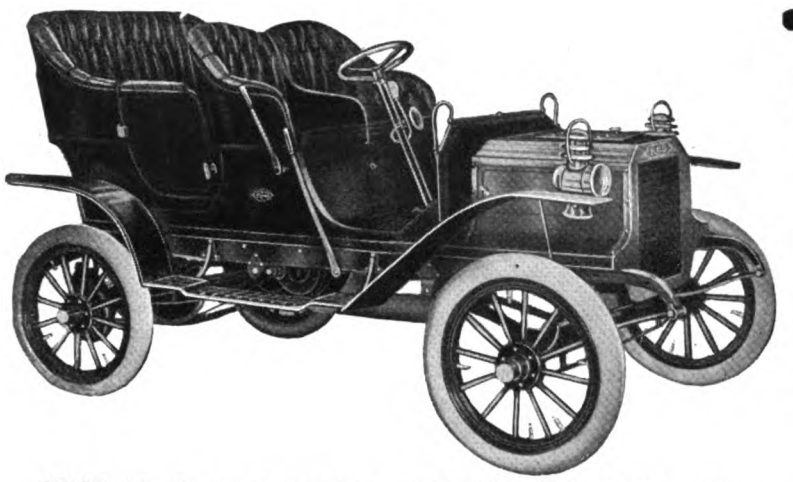
As long and steep hills cannot be always conveniently reached, every dealer in motor cars should have at his place of business a strong wooden box, capable of holding a number of 50 or 100-pound weights and provided with a handle for attaching a rope connecting it to the rear axle or chassis of the motor car. Dragging this box along the ground would furnish very acceptable evidence of power, and would permit ready comparison of several vehicles, more convincingly and conveniently than a brake test apparatus.

Camshaft Gears.—Their condition is most readily judged by their silence when in motion.

Carbureter.—A carbureter need not be examined if the car responds to the throttle on rough ground as on smooth, on hills as on the level.

Water Pump.—If the pump is driven by belt or other friction drive, examine its shaft: there must be no play in its bearing. The gear-driven pump is less sensitive and therefore preferable. Many cars from 1901-1903 are subject to overheating of the motor on hills simply because the pump is too small, but a clogged radiator will have the same effect. The tendency to overheating can be determined practically

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REO Touring Car; 5-passenger; 16 h. p., 1500 pounds; with detachable tonneau; speed 35 miles an hour; with tonneau; price $1250 f.o.b. factory.

The REO Touring Car, taken from stock, won the hill-climbing contest of the Automobile Club, at Springfield, Mass., April 26th, with an average of 26 miles an hour on a 12 per cent. grade up Pecowsic Hill, over all cars of its class; beating some of the best cars in the country that cost three times the REO'S price.

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He adopted many new and improved features to give exceptional strength and effectiveness, but each point was first thoroughly worked out in practice. He was so sure of his car that he built 3,000 all at once.

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It has a double opposed cylinder engine with long stroke piston; simple and original transmission of unbreakable strength; a radiator that can't be overheated or hurt by jarring; automatic carburetor; dust-proof mechanism and valves; absolute and sensitive control; perfect lubrication and luxurious springs.

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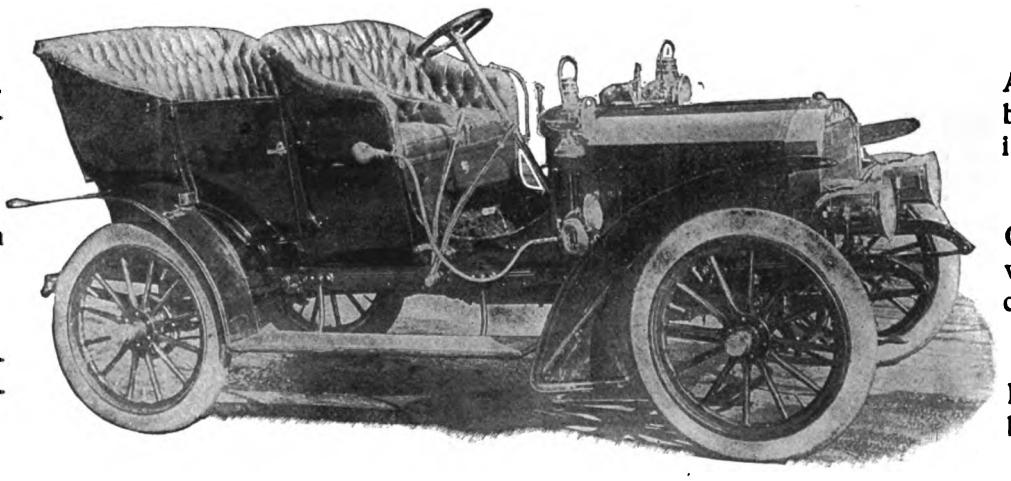
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FRAME
Pressed steel of latest pattern with subframe.

SPRINGS
Semi-elliptic, extra long and flexible.

AXLES
Extra heavy and reinforced to give added strength.



WHEELS
Artillery type, 1¼ in., ball. bearing, 34 x 4 in. Clincher tires.

BRAKES
One on each rear wheel and one on driving shaft.

DRIVE
Propeller shaft and bevel gear.

TRANSMISSION—Three speeds forward and one reverse, with direct drive on the high speed and no idle gears running. Shafts squared—Hess ball bearings on both shafts.

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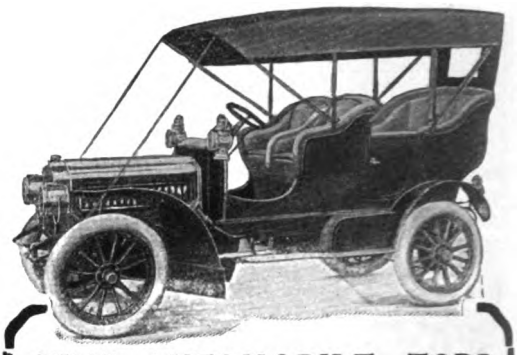
only by running the motor at full speed for some time, either on a steep hill, or stationary in a shop or in the street. The seller will object to running it at full speed with the car standing still, though, because the operation racks the vehicle.

Ignition Mechanism.—Test a dry battery with an ammeter. It is mature for replacement if it registers below 3½ amperes, even if it ignites properly on the trial trip. The bearings of a magneto should be without play. If a dynamo is employed, see that it is switched in on the trial trip after the start, and if it does not maintain regular ignition at all speeds of the car, figure on the cost of having it replaced.

Clutches.—Whatever is the nature of the clutch or clutches of a car, the surest test of their condition is a trip through crowded streets where the car is forced to move at a snail's pace among other vehicles. If it can do this, also shooting into and out of gaps in the traffic when required, without bringing the motor to a stop, there can be little fault to find with the clutch, where the ordinary leather-faced cone clutch is employed. If there is a clutch (the usual metal-to-metal, running in oil) for each gear speed, the test will apply only to the clutch used. If the low-speed clutch will slip or hold at will, there is, however, little chance but what the other ones will operate satisfactorily.

Change-Gear Mechanism.—Unscrew the cover of the gear box and note whether the teeth of the high-speed gear wheels, especially those of the smallest pinion, which wear most, differ in shape from the teeth of the low-speed and intermediate gears. If they do, the wear has been considerable. Smashed or marred teeth will, of course, immediately be noticed. Reach down with the hand and try whether the shafts are firm in their bearings; play means wear. If it is difficult to look into the gear box and see and feel the condition of the gears, raise both the rear wheels of the car from the ground (by jacking up the axle) and, after setting the wheels in motion, shift the gears around slowly and repeatedly. The hand on the lever will feel irregularities, if there are any, and also the play that comes from much wear. If there are clutch bands in connection with the change-gear, see if they are worn thin.

Differential Gear and Chains.—In cars driven by chains to the rear wheels, the differential gear is on a countershaft, usually close to or in one with the change-gear box, and may in some cases be inspected by sight when the box is opened. The second-hand buyer's question is always, however: "How much is it worn?" or, what amounts to the same, "How much wear is there in it, before replacement will be necessary?" The wear may be in the bevel-gear pinion and the bevel-gear, and it may be in the differential gear proper. If he cannot conveniently get an open view of the bevel gears, it will not pay for him to bother about determining in which of the two portions of the mechanism the wear is located. But he wants to judge of the total. To this end, he raises one of the rear wheels from the ground, meshes the low gear, and inserts a wedge of hard wood in the change gears, so that the driving shaft cannot turn (two sticks of wood may be needed to accomplish this). This should lock the differential gear, theoretically, but wear will permit some motion. In order to measure how great this motion is, now take hold of the raised rear wheel, turn it as far as it can be turned without violence in one direction, mark the topmost point of the tire (with chalk or pencil), and then turn the wheel in the opposite direction as far as it will be turned. The angle described by the marked point gives the measure of the wear between the rear wheel and the change-gear box. Only part of it belongs to the differential and bevel gears. Another part comes from the play in the chain and the sprocket wheels. This must be deducted. It is ascertained by fixing the small sprocket pinion in its last position by means of a piece of wood (any tool handle; one easily discovers how best to do this in each case) and slowly turning the raised rear wheel back until it stops. The angle described this time gives the play in



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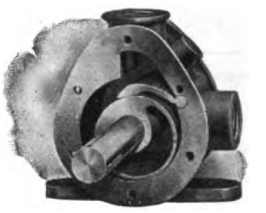
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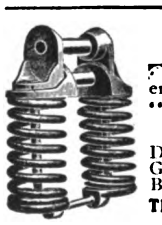
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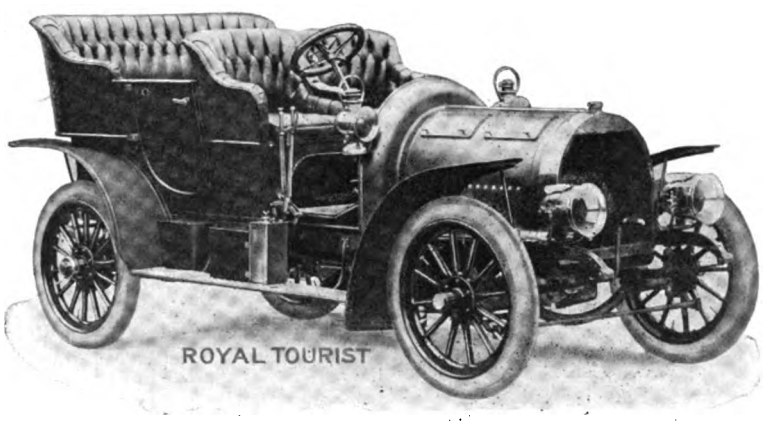
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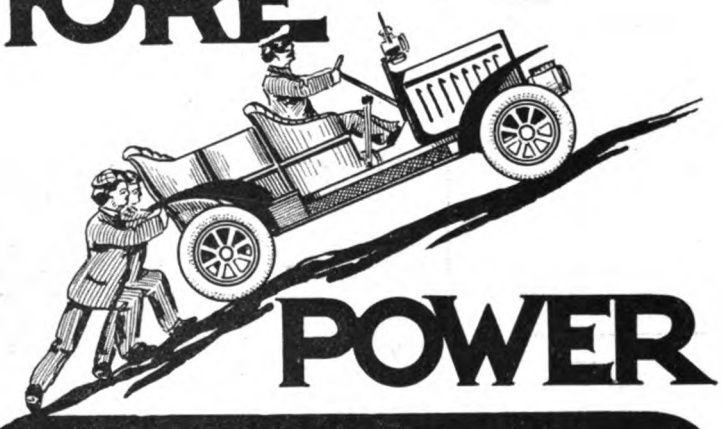
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More H. P. for Weight

DIRECT FLEXIBLE SHAFT DRIVE—FREE DRIVING AXLE
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When you're half way up a hill and find your motor is shy of power, don't condemn all motors, but make up your mind that you will investigate more thoroughly before you buy again. We invite you to investigate our motors—for your car or your motor boat.

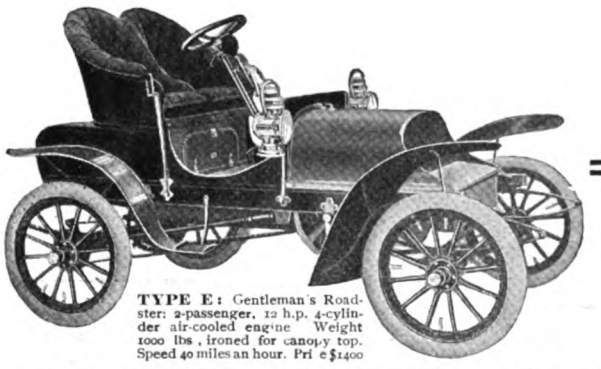
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FRANKLIN



TYPE E: Gentleman's Roadster; 2-passenger, 12 h.p. 4-cylinder air-cooled engine. Weight 1000 lbs., ironed for canopy top. Speed 40 miles an hour. Price $1400

Type E "The Speed Merchant"

Any business man, doctor, suburbanite, owner of a big touring-car, or any one else who wants all kinds of speed for his money will certainly find this little Gentleman's Roadster "delivering the goods."

Don't class it merely as a runabout. It is more. It belongs in the same stable with the highest-powered touring-cars—American or foreign. It goes 40 miles an hour:—not theoretically but actually.

One owner reports that with an accurate Speedometer he has shown 45 miles per hour on the road.

A Minneapolis man on April 24 drove the E car from Minneapolis to Northfield and return, 108 miles, with roads in very bad condition in 3 hours 55 minutes. The former record for this run, under good road conditions, was 4 hours 55 minutes.

In the recent Boston Automobile Club run to Providence, 47 miles and return, our Model E passed 15 large touring-cars and defeated one of the best and best-known high-powered water-cooled cars by 12 minutes.

Send for the "Coast to Coast" book in which Mr. Whitman describes his last summer's trip in this car from San Francisco to New York in less than 33 days.

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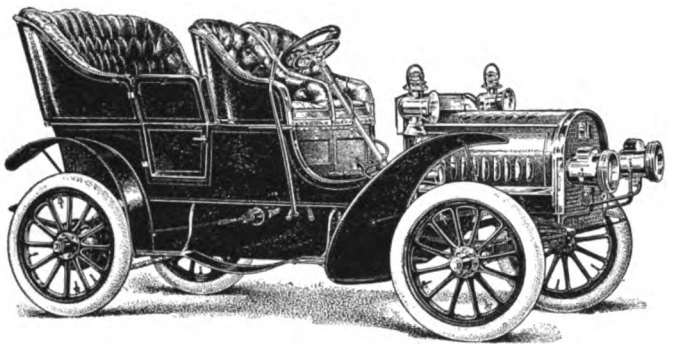
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Rambler

The enjoyment of it is not confined to the hours when the men of the household are free; *women and children can use it meanwhile.* ¶The operation is by one lever, pedals and a throttle attached to the steering wheel. ¶The hand that steers is the hand that controls. ¶Ignition is automatic. ¶The working parts are readily accessible, and so simple that adjustments can be made *without the help of a mechanic.* ¶It is never necessary to crawl under the machine.

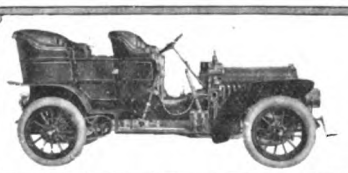
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chain and sprocket alone. The difference between the two angles (or areas) consequently represents the wear of the differential and bevel gears. The whole operation requires not more than five minutes' time.

For a car with single-chain drive to the differential or the rear axle, the turn of the wheel gives the wear in the differential alone—there being no bevel-gear wear for which to allow—if the chain is held immovable by grasping both reaches of it firmly with the hand or a pair of tongs. The chain play now can be ascertained by letting go of the chain and seeing how much farther the wheel will turn, but it is well to remember that the play of the chain and sprocket, whether in this case or in the double-chain-drive car, is identical with chain wear, since it depends a good deal on the amount of slack there is in the chain. The true wear on chains is almost entirely on the pins and in the roller hubs and may be felt with the fingers; the least play between pins and rollers means considerable wear. A more telling measure can be had by comparing a dozen links with an equal number of links of a new chain. The difference in length sometimes will amount to one-half an inch.

The sprockets on rear wheels generally are secured to the spokes by bolts and nuts, and should be perfectly firm at all points of fastening. A loose nut may here cause the splitting of a spoke and thereby a very considerable expense in replacing a broken wheel.

In a car with bevel-gear-shaft drive to a differential on the rear axle, there may be wear in the universal joints of the shaft. This can be estimated by grasping the shaft between the two joints and twisting it both ways. The best joints allow a slight lengthwise displacement, but sidewise there should be none. The wear of the differential and bevel gear is treated, as before, by turning the raised rear wheel. Doing it first with the shaft fixed, then with the shaft free, will give the proportions. The bevel gear may be tried separately by setting the change-gear free, letting the raised wheel down and then twisting the rear half of the rear universal joint both ways. If it more than just moves, the wear in the bevel gear is worth considering.

Steering Gear.—Getting into the seat when the car is at a standstill, try how much the steering crown, or lever, may be turned without affecting the position of the front wheels. The motion should not exceed one inch. If the play is located in the worm and toothed-quadrant device of the ordinary crown-steering mechanism, it is not dangerous, but if it is in the joints between the quadrant and the front wheels, it should be remedied at once. See if the buffer springs of the steering-rod (running lengthwise of the car) have been weakened. This may be seen from below, while some one turns the steering crown. If the springs (often enclosed in leather grease bags) are compressed before the wheels turn (on a smooth floor), they should be replaced. Examine all the ball-and-socket joints; they should be without any play and properly locked with splitpins or keys. The questions involved relate more to the safety of the would-be purchaser than to the cost of any necessary repairs, which here will not be excessive.

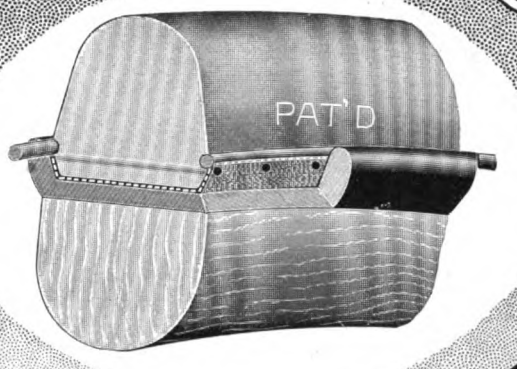
The vertical pivot pins in the steering knuckles sometimes are mounted in plain bearings and work so loose that the wheels wobble. Raise each of the front wheels successively from the ground, and, taking hold of the hub with both hands, try to impart an up-and-down rocking motion to the wheel. If such motion is due to wear and play of the pivot pin, the wheel will not rock in any other direction; but the wheel may be too loose on its shaft and, in that case, will rock sideways when grasped by two tires and shaken. To locate the pivot wear definitely, lock the wheel bearings tightly and try to rock the wheel up-and-down again.

Wheels.—If the wheels are mounted on old-time ball bearings, it is indispensable to remove each of them and carefully examine cups and cones. These should be perfectly smooth and without cracks. Rough or chipped balls will quickly lead to trouble and expense. The modern non-adjustable ball-bearing, which is subject to very little wear and rarely gives any

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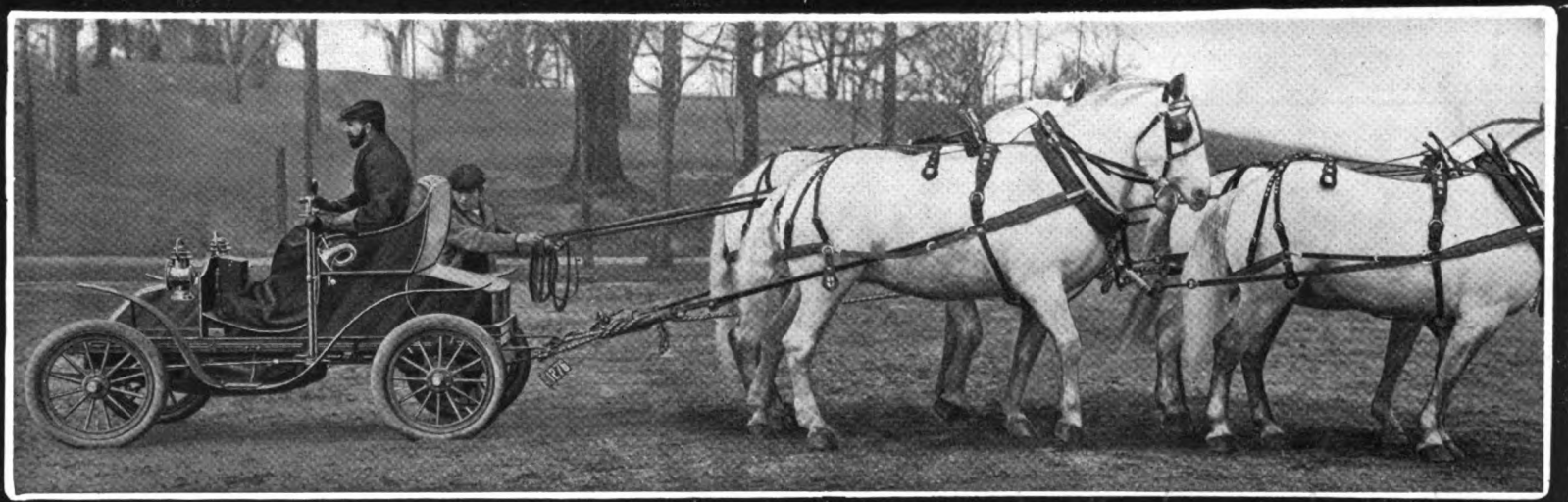
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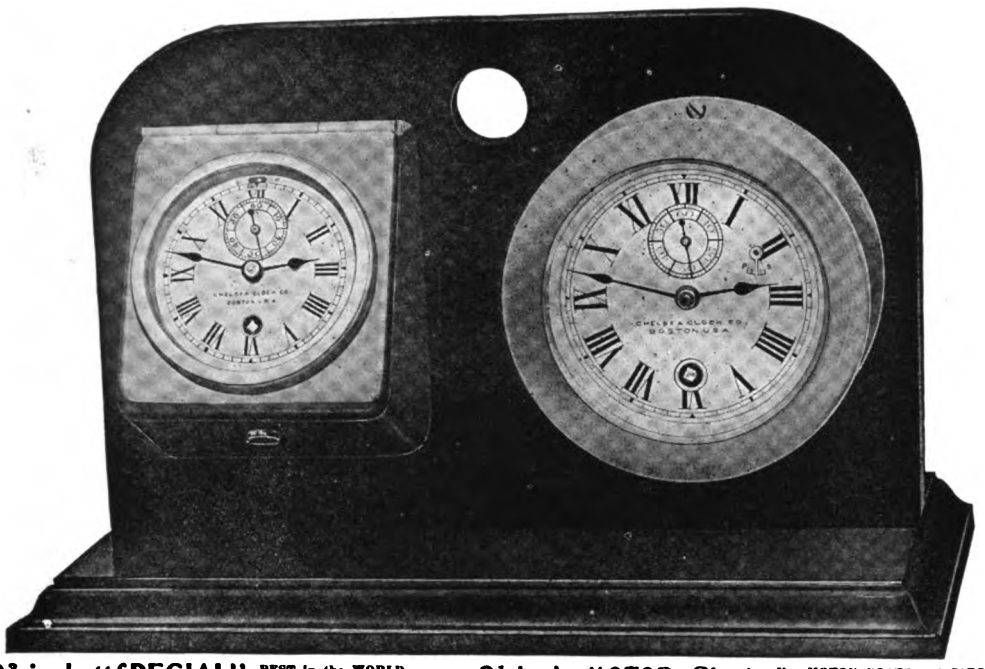
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(Trade Mark)



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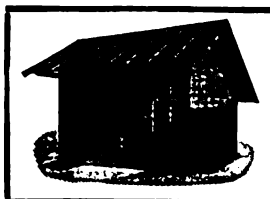
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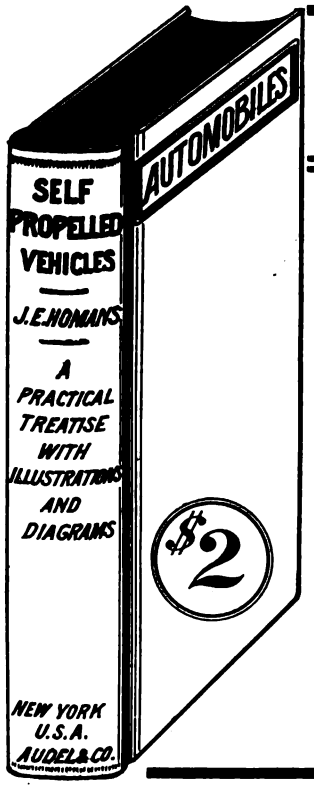


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trouble, seldom are found on second-hand cars.

A roller bearing that is out of order nearly always will manifest its imperfection by a very remarkably increased friction when the wheel is spun around. Take the precaution, however, of spinning the wheels (especially the rear ones, which offer greater resistance) both ways.

Plain cone or parallel bearings are, as a rule, worn considerably in a second-hand vehicle. To ascertain the extent of this wear, first have each wheel properly adjusted so that there is no lateral play of the hub on the shaft, but also no binding. Then try to shake the wheel by the spokes or tire. Wear in the bronze bushings shows itself by rocking in all directions and means eventual renewal of the bushings. If the rocking takes place only or mostly in a vertical plane the shaft is worn, and this is more serious, financially.

Brakes.—The best trial of brakes takes place on the road and is indispensable. A brake may wear so unevenly that it ceases to be double acting (operating against backward as well as against forward rolling of the car) even if it was so when new. In case there is no chance to test the quality on a hill, attempt at all events to roll the car backward with brakes set, applying only one brake or set of brakes at a time. Band and block brakes are most likely to fail; internal-expansion brakes less so. Sometimes the fault can be remedied by readjustment. Bands, segments, and blocks should be examined for wear. Segments do not expand uniformly if worn too thin, and worn constricting-bands may break.

Springs.—Unless sagged unevenly, springs do not reveal their condition to a casual inspection. Wear of the shackle bolts and the eyes of semi-elliptic and inverted-elliptic springs is shown, however, by a loose fit and rounded edges of the eyes and will indicate the amount of work to which the springs have been subjected. Similarly, look for looseness at the end joints of double-elliptic springs.

Tires.—The probable life of a used tire can be determined only by a very minute and expert inspection, necessitating dismounting. For first comparisons of values of several vehicles the bargain hunter may be governed by merely external indications of wear and cuts, but when the time comes to agreeing to a certain price for a certain car, and the seller contends that the tires are "as good as new," it is the part of prudence to insist upon having them dismounted and to proceed to testing the interior canvas walls of each casing. If any of them has a brown or black spot, especially if it corresponds in location to an external cut (ever so small), such a tire is doomed to an early death from the rotting effects of the rust spot. It is still worse, if signs of rust are shown at or near the retaining flanges, for such spots will spread. Paint spots upon the outside of the casing have similar results, though the effect is slower. Folds or crease marks in the canvas indicate that the tire has been used when deflated. If any part of the external surface bulges, press the corresponding internal spot hard with the rounded end of a tool handle, and if the canvas yields in the least, consider the tire as without value.

If the inner tubes show puncture patches, see if these have been vulcanized. Wet the edges of each patch with gasoline and then try to loosen them. The edge which resists firmly has been vulcanized. Insist on having vulcanization take place before closing a bargain.

There are variations in motor-car construction which it has been impossible to include strictly under the wording of these rules, and which will call for slight changes in the methods of procedure, but these changes will suggest themselves readily through that practice in applying the rules which, as once before said, is required for converting the layman into a person whose unhesitating competence will "make a good front" in a trade with almost any of those who have bargains to dispose of.

In addition, however, the rules have an autodidactic value of superior genuineness. No one can apply them a score of times without absorbing a true understanding of the main points in what constitutes motor-car commercial values, and part of the knowledge will be derived from the critical commentary which this method will

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Morgan's Patent

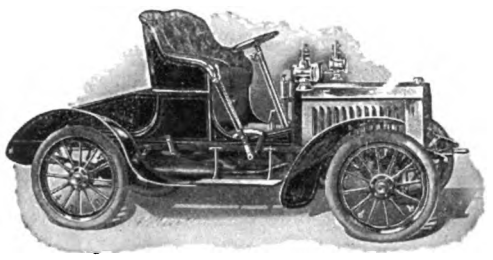


Autocar, $2.25 each. 12-15 and 24 Panhard, $7.50 each. Peerless, 2 cyl. 16 H.P. $4.50 each. Pierce's Stanhope, $5.25 each. Thomas, 30 H.P. 1904, $5.25; 40 H.P. 1905, $5.75. Pope-Toledo, 1904, $4.75; 1905, $5.00. 16-20 Locomobile, $7.50.

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THE WATERWAY

Dear Phil:

You want to know where to go this summer? By all means, take a sea trip—preferably an inland sea trip, such as I made last summer. If you will remember, I made the run on the D. & C. Steamers from Cleveland up along the Michigan shore of Lake Huron to Mackinac Island, and I can say now that I never before enjoyed a trip of the kind as well.

I am not much of a traveler, but I like traveling, especially when I have some of the "comforts of home" en route. The clear, cool, delicious breezes, which, as you know, blow over the lakes pretty far above the sea level and give one, therefore, the advantage of altitude, serve to brace up the flagging, enervated system of a city worker—which I am.

The Detroit & Cleveland Navigation Company certainly know how to build boats, or have them built, in the right way for the convenience of their passengers; and they also certainly know how to keep them going along the right lines. The steamers of this line are pretty big ones, much bigger than I had any idea would be used on the lakes. They have more the appearance of Atlantic Ocean greyhounds and considerable of their speed. At any rate, they are the kind of boats that make you feel comfortably certain of getting through a good hard gale in; and after you get well settled aboard, you have a sort of complacent feeling about safety and such things, which you don't have when you put out beyond Sandy Hook for the other side of "the pond."

The officers, too, are mighty fine chaps and with uniform courtesy try to make it just as pleasant for you as possible.

The decorations of the steamers make them appear almost palatial. Everywhere you go, aboardship, you will find things pleasing to the eye, from the wood trimmings to the fresco decorations on what I suppose you would call the walls and ceilings in ordinary parlance, but which is not strictly nautical in term.

You will find your quarters comfortable—I did, anyway—and the table par excellence. You don't have to take what's handed to you, the way we got it handed to us, if you will remember, when we took that little sea trip a couple of years ago.

Don't make any mistake about it, you will enjoy every inch of the way from Cleveland to Mackinac Island. Parenthetically, let me remark that there is a delightful moonlight trip to be made from Detroit to Cleveland, and you should make it a point to "do" this surely. The route I took on the D. & C. steamers was from Cleveland along the Lake Erie shore westward to Toledo, the "city of straits," thence northward to Detroit. After leaving Detroit we went into Lake St. Clair, where, by the way, Ford made the wonderful mile record on the ice in his motor car. Still going northward, we passed along the Michigan coast, along the summer resort region of that state, past Marine City, St. Clair, Port Huron (where Edison made his first telegraphic experiments with Sarnia across the strait), Harbor Beach, Ausable, Green Bush, Black River, Alpena, and Cheboygan and Mackinaw City, on Mackinac Island.

When you reach Mackinac Island the beauty of it, as you approach, will appeal to you so strongly that you will want to "do" the whole island thoroughly in approved form. It is one of the most ideal summer spots on the face of the earth, picturesque to a degree and delightful beyond all measure as to climate. It will always have its lure for the summerist."

Before you make up your mind to go anywhere, let me advise you to send a two-cent stamp to the Detroit & Cleveland Navigation Company, at Cleveland, Toledo, or Detroit, and they will send you an illustrated pamphlet which will give you all the information regarding their service, together with the tourists' rates and routes to all northern resorts on the Great Lakes. You won't make any mistake if you decide to go on this trip. Yours,

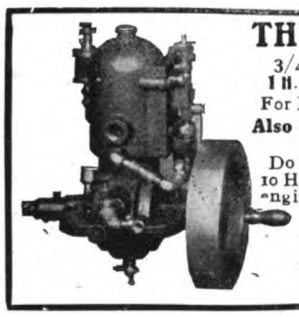
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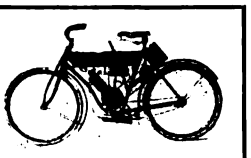
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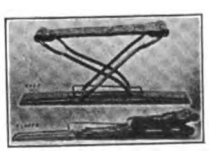
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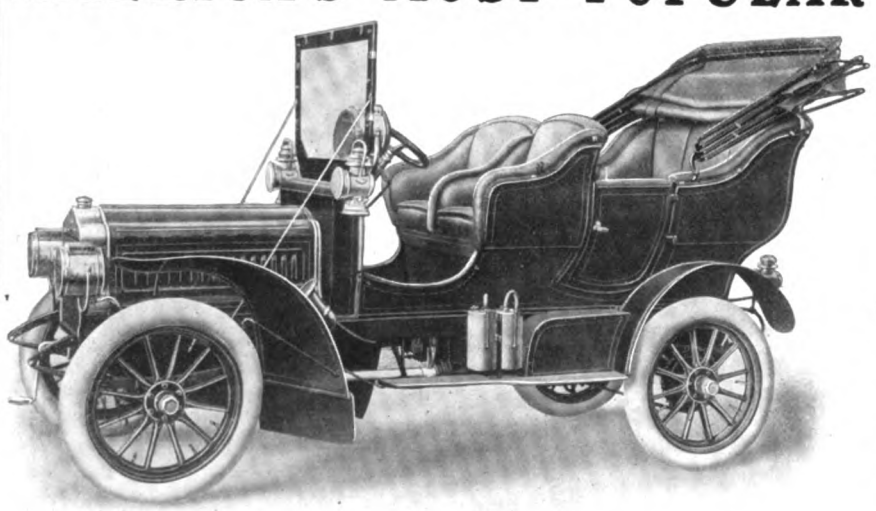
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Art Catalogue, Printed Matter and Name of Nearest Agent Sent Upon Request

not fail to provoke when, in the first few instances, the investigator makes a mistake or two in its application. Very soon he will be superior to his critics.

Having decided, in a general way, how he will go about examining cars, the second-hand buyer to be may well figure on saving time and avoid getting tired. The judgment of a tired man is not good, and, after all rules for examination have been applied, it still is the quality of judgment that must say the last word, the yes or no that decides the trade and clinches or misses the bargain. The rules furnish only the material that permits this judgment to take definite form. In purchases requiring careful preliminary investigation, it is an axiom that the majority of persons reach a conclusion when they get tired rather than when they are satisfied. This trap set by human nature for itself should be avoided. A judicious use of postal cards will do much to save the work. The telephone is another work-economizer. If possible, divide the investigation among all the days of a week, a couple of hours each.

A good way to proceed is as follows: Answer every advertisement that appears on a certain day in one or more publications, stating your want very broadly (without mention of price) and asking for particulars. At the same time, have inserted an advertisement asking for offers. Time it to appear toward the end of the period that you expect to devote, wholly or in part, to the hunt.

Commonly, those who rely upon advertisements for finding their want and filling it, pick out a few that appeal to them for some reason unknown to themselves, leaving the rest unheeded. They simply fall victims to the advertiser's skill in phrasing his offer. The best bargains may be found behind some very indifferent announcement. Therefore, as said, send a postal card to all advertisers whose cars, from the data furnished, may come anywhere near your needs. Their replies, giving particulars, will be a little less guarded and more explicit than the advertisements, and will give more of a clue to what there is to be had in the market than could be obtained by trudging personally from dealer to deal in a week's time. There alone is a saving of several days and perhaps several hundred dollars. Among the replies there will always be some quoting a very low price (considering the model offered) and others quoting figures nearly equal to the regular selling price for new vehicles.

If price reflects condition, however, roughly, here are then two extremes which the bargain hunter may try his rules, gaining at the same time experience, self-confidence and valuable material for comparison. Having tried to measure wear and tear on cars which yield an almost open confession of a worn-out mechanism and also on cars which are nearly new, and with the memory of trial trips with both kinds fresh in his mind, he rapidly reaches a basis for estimating the financial equivalent of the wear which the rules will disclose in other cars subsequently offered him.

When a few days have been spent in examinations, it will be time to look for replies to the advertisement inserted. These may in some instances throw light on the prices asked for some of the cars already examined, but the principal reason for desiring these replies to come toward the last of the hunt is that they probably will bring new offers from private owners who wish to save an agent's commission on a sale; offers that may be quite advantageous, but that cannot be examined so closely as those from dealers, because of the more courteous forms of inquiry expected in a private deal, which therefore calls for greater skill and quicker decision on the purchaser's part. Coming from persons who perhaps have never before thought seriously of selling and who may not yet have decided the question of price, offers of this class also will afford the amateur buyer the best possible chance for coining his new-born proficiency as a judge of motor-car values into a pecuniary saving.

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STEVENS = DURYEA

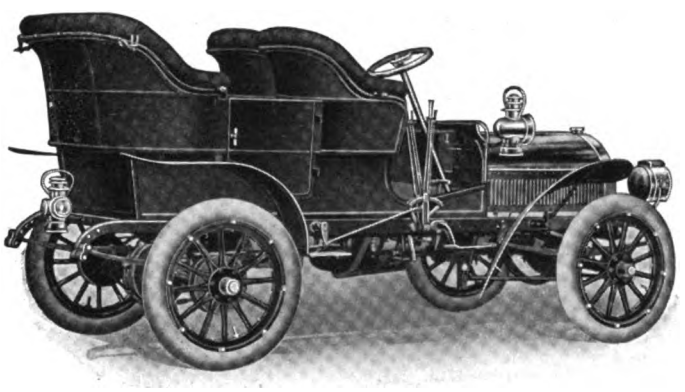
FOUR-CYLINDER, TWENTY HORSE POWER

TOURING CAR

Maintains its reputation as a hill-climber by winning Class D in the Hill-climbing Contest at Springfield, Mass., April 26th, and running second in the Open Event FREE FOR ALL.

The time made by our regular stock 20 H. P. Car was 37 3-5 seconds, which was the best time made by any American Gasoline Car.

This remarkable record was surpassed by but two seconds, by a foreign built Gordon-Bennett racer of 60 H. P., SELLING AT THREE TIMES OUR PRICE.



MORAL

In order to get all your engine power to the rear wheels you must have a STEVENS-DURYEA THREE POINT SUSPENSION.

Price, Standard Equipment, $2500.00.

J. STEVENS ARMS & TOOL COMPANY

712 Main Street
CHICOPEE FALLS, MASS.

Member N. A. L. A. M.

Monarch



7 H. P. Air-Cooled Runabout

SIMPLE, EASY RUNNING

ALL PARTS ACCESSIBLE

SPEED 4-22 MILES PER HOUR ON HIGH SPEED CLUTCH

BODY CAN BE REMOVED WITHOUT DISTURBING ANY OF THE WORKING PARTS

ALL SPEEDS OPERATED BY ONE LEVER

PLANETARY TRANSMISSION, TWO SPEEDS FORWARD AND ONE REVERSE

We have aimed to place on the market a high-class vehicle at a figure within the reach of all. The Monarch is guaranteed as to structural strength and to be free from all mechanical defects.

The Monarch has less parts than any other automobile, consequently it is less liable to get out of repair. It is so simple that a child can operate it.

PRICE OF RUNABOUT, Without Top, $500 **PRICE OF RUNABOUT, With Top, $550**

MONARCH AUTOMOBILE CO.

NORTH AURORA, ILLS.

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THE MOTOR MAIL DELIVERY

Whosoever else is in doubt that the day of the commercial motor has arrived for good, and to stay, the Postmaster-General of Great Britain is not. He has satisfied himself that for mail collection and distribution on many routes, it is better than the railroad; and that, in districts where the railroad does not actually pass through, it is the very thing he has been looking for ever since the lumbering coaches went off the highways, and the old system of letter and parcels delivery gave place to a new one, which left many old-fashioned places and roadside villages very poorly provided for. Like a wise commercial man, he recognized early the capacity of the motor car as a reliable and sufficiently speedy aid to his duties. Having proved this by experience, he is advertising for three years' contracts for the collection and delivery by motor cars of letters and parcels over many defined routes radiating from the centers of commerce to places reachable between half-past ten o'clock at night, by which time practically all letters and parcels are ready for despatch, and six o'clock in the morning, which enables the mail to be ready for the first delivery anywhere within a hundred miles of their point of original despatch. That is to say, letters and post parcels mailed in Birmingham, Manchester, Liverpool, Edinburgh, London, and the larger cities will travel by motor all night, every town adding and subtracting its quota, and the final stop at some other important commercial center will be in time to catch the earliest rural delivery to lesser centers. This is a significant victory for the commercial motor vehicle, and a boon of incalculable value to the remoter dwellers, who in turn are served by a lighter form of runabout, which is at their doors by the ordinary breakfast time, and off again to their neighbors like a flash, never tiring, never failing. Of course, all this requires as a condition, "good roads," and there is no reason whatever why all America, or at least all that part of it which lies within the wide zone of reachable towns and villages, and summer resorts, should not be as well served. We have the best of road-making materials, we have the best of machinery and ample skill, we have a population which daily, more and more, requires the best of public service; all we need is the awakening of public interest in better roads. We do not know how we can bring the subject nearer home than to obtain the co-operation of the dwellers who need and profit in mind, body, and estate by rapid and reliable free rural delivery. By way of clinching the argument, it may be stated that every advantage in the way of increased facilities and cheapness of rates which has been dealt out to the Englishman at home and to the farthest mile of his widespread colonies, has brought increased profits to the government. A particular reason why American motorists should be interested in seeing the new conveyance applied in the postoffice department's rural free delivery service is that a most powerful new influence for good roads would be thus brought into existence. The rural free delivery routes in the United States already embrace an immense road mileage, and it is to the interest of every one that these routes be over good roads. Good roads make it easier to conduct the service and keep it efficient, and lessen maintenance expenses. With motor cars, still greater economies would result, because one postman and one vehicle can serve a longer route. There is no reason why the government should not be an immense gainer financially, for while this method of mail delivery will considerably reduce the cost of maintaining the service, the use of the mails by these inhabitants of rural districts who benefit most by the motor-vehicle method of service, will increase many fold, and, of course, the postal revenue in proportion. Moreover, with the arrival of the motor car and its unquestioned ultimate universality, good roads are bound to be but a short time hence. A substantial surplus of many millions every year is paid from the postoffice into the federal exchequer, and mainly because of good roads.

Road Maps *for* Motorists

Many different road maps have been issued, but practically all of them are either entirely or in part merely bicycle road maps and are not, as a consequence, of much use to the motor-car tourist.

We have a limited number of copies of a volume of road maps of the state of New Jersey. It is the official touring book of the American Automobile Association, which stamps it immediately as the best.

The maps are compiled from data gathered by the Federal surveys, state surveys, local official surveys and records, and private surveys—all of which was finally verified by personal observation.

They show all streets and roads, and especially indicate the best streets and roads for motor travel. All grades are indicated as to location and percentage.

The maps are also regular atlas maps, showing cities, town and corporation boundaries, streams, lakes, etc. Each county of the state is on a separate sheet (making in all 21 maps) which gives the maps a very large scale of miles.

You can have a volume of these maps FREE with a year's subscription for MOTOR—$3. If you are already a subscriber, you can extend your subscription for a year.

DO THIS—fill out the coupon below—tear it off the page—and mail it to-day—now.

We will send you MOTOR for a year (or extend your subscription one year) and deliver to you the volume of road maps by express C. O. D. with the privilege of examination. If upon examination the volume of road maps is not satisfactory, give it back to the expressman and it will cost you nothing. Or if you wish, you may send the $3 now.

WHATEVER YOU DO, DO NOW

FILL OUT TEAR OUT MAIL TO-DAY

MOTOR
1789 Broadway, New York City

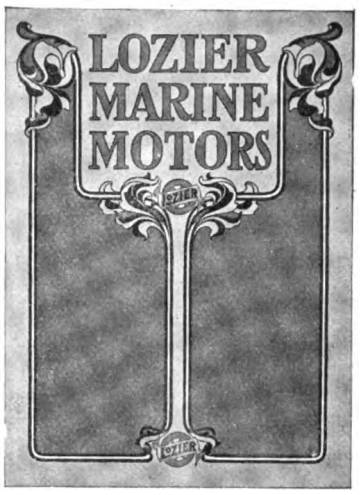
Please send me MOTOR for one year, and also deliver to me, by express C. O. D., with the privilege of examination, a volume of ROAD MAPS OF NEW JERSEY. If the book is satisfactory I agree to pay the expressman $3 to pay for MOTOR for one year and the book in full.

Name .....

Address .....

.....

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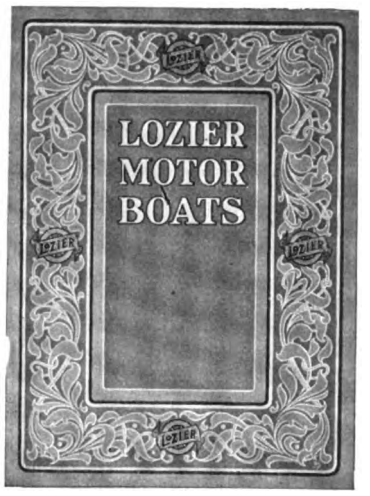


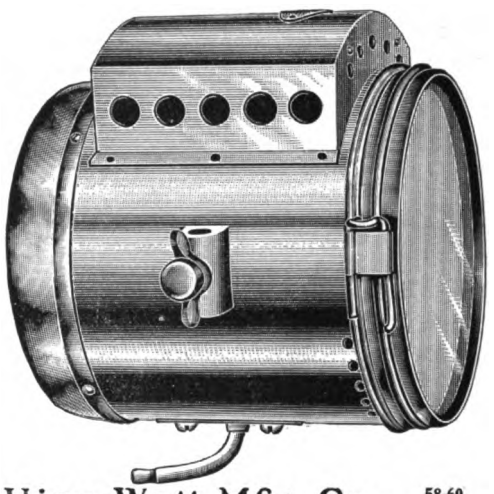
MOTOR BOATS AND MARINE MOTORS

TWO NEW CATALOGUES

of our High-Grade Product that you should have at the correct psychological moment to influence your decision in the right direction—that is to say—Lozierward. Our Boats and Motors stand so high that your saying you will buy a "Lozier" invites approval from those who know. We have Motor Boats in stock for quick delivery—21, 25, 31, 36 feet, all ready for immediate use—we build to 90 feet. Tell us what size boat you want, and save time. Motors from 3 horse-power, up.

THE LOZIER MOTOR CO. 1 BROADWAY, SUITE 1 NEW YORK CITY





Columbia Search Lights

A. with 5-in. mirror lens.
B. with 6-in. mirror lens.
C. with 7-in. mirror lens.
D. with 8-in. mirror lens.
All are equipped with adjustable burners.

In our three portable generators, the water feed is controlled by gas pressure and you get the least possible amount of moisture on the carbide at any given time.

Write for Catalogs.

Hine-Watt Mfg. Co. 58-60 Wabash Ave. **Chicago, Ill.**

GILBERT
Auto Fabric Supplies

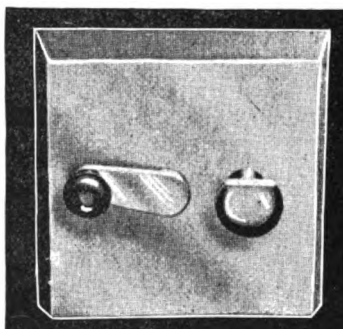


TIRE CASINGS, STORM APRONS, COVERS, LEGGINGS, SLEEVE PROTECTORS, TOOL ROLLS, INNER TUBE CASES, &c.

We are the largest firm in the world in this line. Our goods have an international reputation.
For sale at all supply houses and dealers.
Write for catalog.

CAUTION.—Look for the name. Don't buy a law suit with a tire case.

GILBERT MFG. CO., New Haven, Conn.



Question—
Is it worth $5.00 to insure your car permanently against theft and wear on the batteries?

Answer—
Your Own Common Sense.

THE
Combi-Switch Lock

will protect your automobile from theft or unauthorized use, and, most important of all, ***it will insure long life for the batteries.***

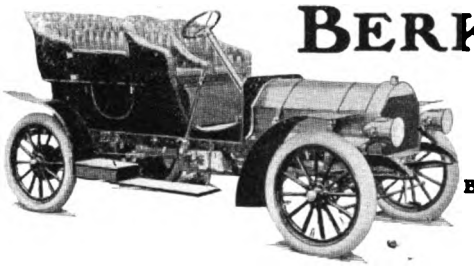
If You Have Ever suffered the annoyance of having some irresponsible person throw in the switch and run down your batteries

You Know that it is a very important reason why you should use the **Combi-Switch Lock**

The combination can be worked in an instant, even in the dark with heavy gloves on, quicker than it is possible to get a key out of your pocket.

SEND FOR DESCRIPTIVE MATTER

Acorn Brass Mfg. Co., 52 N. Peoria St., Chicago, Ill.



BERKSHIRE

GASOLENE CARS

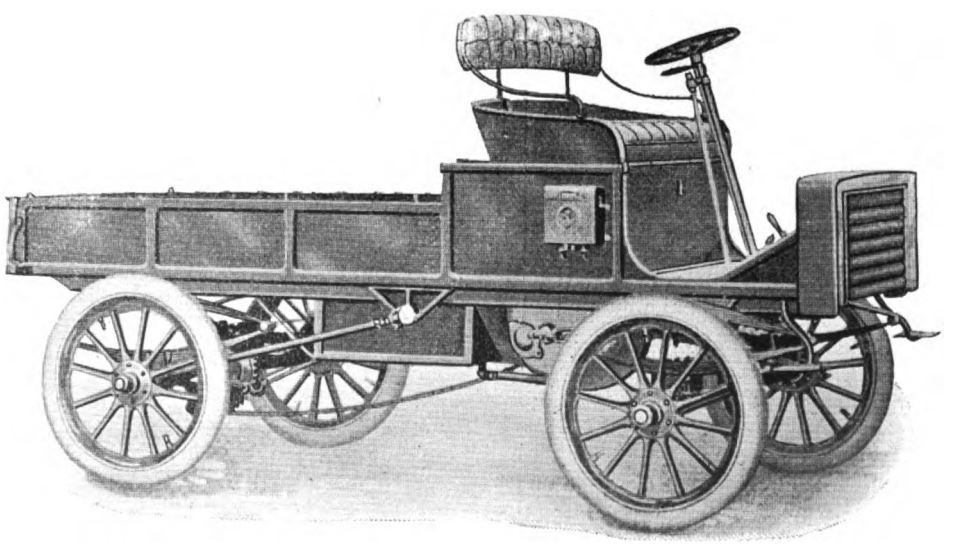
BUILT FOR AMERICAN ROADS

Write for catalogue, giving details of cars and our Wonderful Transmission

18 H. P., Water-Cooled, 4-Cylinder, $2,000
30 H. P., Water-Cooled, 4-Cylinder, $2,500
Side Entrance, Detachable Tonneau

BERKSHIRE AUTOMOBILE CO.

Boston Office, 319 Columbus Ave. Pittsfield, Mass.



Buckmobile Business Wagon

Every business man's first business care is for the welfare of his business. If he can find some way in which to cut down his expenses and increase the efficiency of some particular department of his business, he unhesitatingly adopts the way—if he is enterprising.

We can show you wherein you can reduce the expenses of your delivery department and increase its efficiency threefold. The

Buckmobile Business Wagon

is the staunchest motor wagon made. It has an abundance of power in its two-cylinder vertical motor and will go anywhere with any load that can be placed upon it.

The Buckmobile Business Wagon is made for all purposes. It is easily converted into an observation buss or stage for hotels, excursions, etc., by the addition of extra seats. Send for details of this car, also of the 1905 BUCKMOBILE RUNABOUT.

BLACK DIAMOND AUTOMOBILE CO.
700 Genesee Street, UTICA, N. Y.

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DIXON'S GRAPHITE MOTOR LUBRICANTS

FOR BETTER LUBRICATION

Interesting Booklet and Samples Free

Joseph Dixon Crucible Co.,
Jersey City, N. J.

KENT POCKET METERS

Accuracy Guaranteed

Volt-Am-Meters O-5V. O-20A. Price, $6.00
Volt Meters, O-5V. $5.00
Ampere Meters, O-20A. $5.00
Discount to Trade.



Atwater Kent Mfg. Wks.
103 N. 6th St.
Philadelphia, Pa.

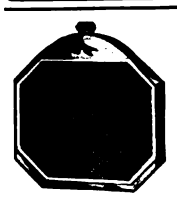
LUBRICATION.

AUTO-OIL will not thicken in cold weather, or run like grease in hot weather. No grit. No gumming. No acid. No carbonizing. **Perfection.** We pay express and **if not entirely satisfactory no charge will be made for any portion used. Try it once.**

5-Gallon Can, with Patent Spout, $5.00
6 1-Gallon Cans, with Patent Spout, $6.00

Special prices in barrel and half-barrel lots. Delivered free anywhere in the U. S.

AUTO-OIL CO., 45 Pine St., New York
P. ALBERTI, Manager



The Whitlock Cooler

IS THE STANDARD

Manufactured By

The Whitlock Coil Pipe Co.
HARTFORD, CONN.

Radiators and Coolers of Every Description.

THE

"Champion Accumulator"



Equip your motor boat with electric lights by using "Champion Accumulators"— and be sure of ignition besides. Batteries for 2 to 25 light capacity. Folder "D" gives full particulars.

HECTOR MacRAE
314 St. Paul St. BALTIMORE, MD.

THE MARMON MOTOR CAR

is the only car embodying
Double Three Point Suspension
and is, in whole and in every part
"A MECHANICAL MASTERPIECE"
Ask for Booklet No. 4.

Nordyke & Marmon Company, Estab. 1851. Indianapolis, Ind.
Member American Motor Car Manufacturers' Association, Chicago

If you get soaking wet it's not our fault; we told you about

The Davis Rain Robe

"It's up to you" now for **$7.00**

***Our Booklet* Substantiates Claims We Make**

Davis Robe Co., 126 S. State St., Chicago

The Marion Motor Car

Simply Built
Simply Run
Price, $1,500

Air COOLED. 16 horse-power DEVELOPED.
Beautiful in design and finish. EASY RIDING.
Speedy. DURABLE and DEPENDABLE. We build it.

MARION MOTOR CAR CO., INDIANAPOLIS, IND.
Our interesting catalogue yours for the asking.

THE EVOLUTION OF THE MOTOR CAR

(Continued from page 39)

(3) It shall discharge these functions on time and never compel either children or family to miss their train if they leave home on time.
(4) It shall take the man to his office in the same city and bring him back at night.
(5) It shall take the man or his representatives on business errands during the working day.
(6) It shall take the physician on his professional visits.
(7) It shall take the clergyman on his parish calls.
(8) It shall take the farmer to the store for shopping.
(9) It shall take the farmer's daughter to the post-office for mail.
(10) It shall take the young man to the house of his best girl, and permit both to have a drive on moonlight nights with a certainty of getting back within conventional hours.
(11) It shall enable the man whose business hours are not too long to live outside of the city and secure the benefits of country life for his children, while driving in and out every day to his business as reliably and certainly as the suburban train or the river boat bring him now.

I submit that this type also is only in its beginnings. It is unsafe to don the prophet's robe, but I throw out the suggestion that this reliable type to meet the demand as I have voiced it above will not be secured through:

(a) The need of a man's strength to crank the motor in starting.
(b) The need of a high-priced or skilled operator to keep the machine up. Co-operative stations in closely populated places may furnish this skilled labor, but the need of such a man must be dispensed with if the country territory is to be conquered by the motor car.
(c) Pneumatic springs enclosed in rubber must not be placed in the vehicle where abrasion and mechanical injury can be caused to the enveloping rubber by the poor character of the road bed. Rupture of the rubber releasing the air is always near to the pneumatic-tired vehicle and reliability will not be secured when the air can be so easily released by puncture or leaky valves.
(d) The practice of compelling the fuel supply to pass through openings of needle size must be done away with.
(e) The unreliability of electrical transmissions, contacts, sparks, and arc must be outgrown.
(f) The inconveniently high temperature which causes distortion of parts and important surfaces must be impossible.
(g) Inconvenience of water in freezing weather must disappear.
(h) It will be convenient if stored reserve of power can be at hand to help start or help in unusual emergencies.

I do not want to open the controversy as between the internal-combustion motors and the motor driven by steam. But I think from my list above it will be fair to generalize that the swing of the pendulum away from the steam-driven motor is not necessarily final, but that for many users the pendulum will swing back again when we have ceased to be as much as at present under the domination of the fashion set by transatlantic development.

The other perspective of evolution is the evolution of form, which perhaps may be also designated as the historical evolution. Here the same types enumerated in the "evolution of function" appear of necessity but in a different order.

The first historical type was the service vehicle for the transport of persons. The second was the touring type or pleasure vehicle. The third and fourth, or the truck and the racer, began together and are still coming forward. The commercial interest attaching to the touring car, as suggested before, has caused this

USE **ALBANY GREASE**

THIS TRADEMARK ON EVERY PACKAGE



Reg. U.S. Pat. Of.

FOR YOUR AUTOMOBILE

LOOK OUT FOR YELLOW LABEL

WHY?

It is the only safe lubricant.
It is the standard "auto" lubricant.
It is always uniform in quality.
Can be used in any style or make of Compression Cup.
It avoids rust and reduces friction.
It prevents hot journals and *will not gum.*
It will always bring you back in good condition.
It is the cleanest and cheapest of lubricants.
IT IS USED BY MOST MANUFACTURERS OF AUTOMOBILES TO START THEIR NEW MACHINES.
It can be purchased the world over from Engine and Mill Supply Houses, Hardware and Oil Dealers.

Use No. 2 grade for Winter and No. 3 for Summer. For Transmission or ensemble gears use No. 1 in Summer, and No. 0 in Winter. The quality of the grades is the same; the difference is only in consistency.

MADE ONLY BY

Adam Cook's Sons, 313 West St. N. Y. City

Automobile Sundries

LAMPS HORNS TIRES
CLOTHING JACKS HAMPERS
STORM COVERS

Everything in Sundries

Send ten cents for Catalog. Free to dealers.

Hoover-Ball Company
NEWARK, OHIO

SOLE LEATHER HAMPERS
For AUTOMOBILES

Steel Frame, Hand Sewed, Linen Lined, Waterproof, Dustproof. Also Number Pads and Lamp Numbers in accordance with New York Law.

JOHN BOYLE & CO.
112-114 Duane Street, New York City
Send for circular and prices : : :

ASTER MOTORS
FOR AUTOMOBILES AND BOATS
1659 BROADWAY, NEW YORK CITY

MOSLER SPIT-FIRE
The most reliable Sparking Plug. Used by all leading manufacturers.



A. R. Mosler & Co., 1679 B'way, N. Y.

A PERFECT IGNITION OUTFIT ALWAYS BEARS THE NAME.....

SPLITDORF

BEAR THIS IN MIND WHEN YOU ARE LOOKING FOR SUCH

C. F. SPLITDORF, 17-27 Vandewater Street New York, U. S. A.

"LACOSTE"

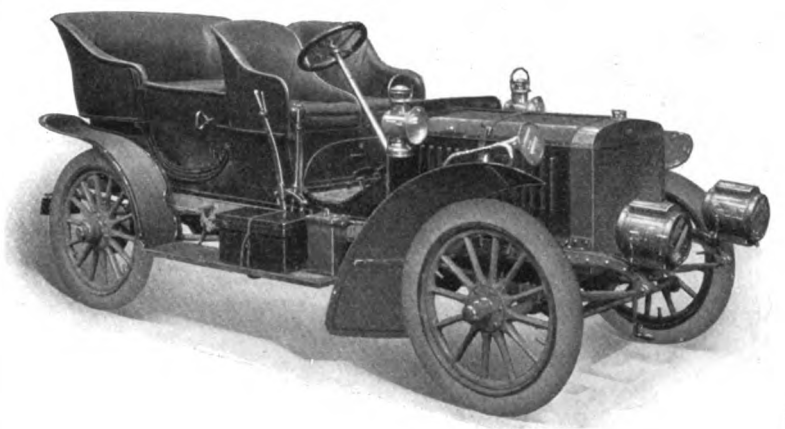
Wipe Contact Commutator

Absolutely Insures Contact. Runs in Oil. No Wear. Dust-Proof
Special Prices to Manufacturers

LEON RUBAY
140 WEST 38th ST. - NEW YORK

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Ardsley



Body, Roi des Belges.
H. P. 30-35.
Weight, 2,250 lbs.
Weight per H. P., 75 lbs.
Wheels, 34 inches.
Tires, 4 inches.
Wheel Base, 100 inches.
Seats 5 people.
Water, 8 gallons.
Gasolene, 16 to 20 gallons.
Extra shoe space under tonneau.
Tool Box and Tools.
Straps for hood and boxes.
Horn, 6 Inch, with tube and screen.
2 gas lamps and separate generator.
2 side oil lamps.
1 oil tail lamp.
Muffler cut-out.

Ignition, double set, including two sets of plugs over inlet, one operated by battery and spark coil, the other by high tension magneto with distributor and spark advance, thus giving two separate and distinct systems of ignition.

SILENCE

is a feature of the **ARDSLEY** car when running. The explosions of the engine are completely muffled. All that is heard is a low hissing in the muffler and the buzz of the vibrator.

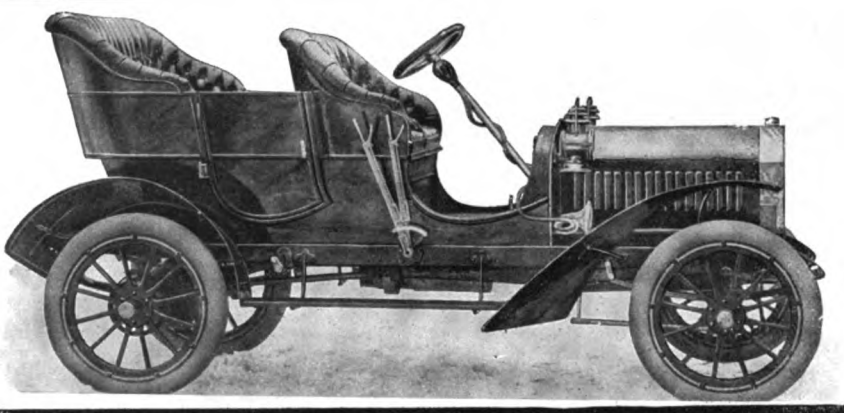
This is only one feature of perfection in the **ARDSLEY.** The same ingenuity and skill which has produced an absolutely silent running car, has also worked upon the other salient features of the **ARDSLEY**—making it thereby as nearly perfect as human hands and brains can make it.

PRICE, $3,500 WRITE FOR CATALOG.

ARDSLEY MOTOR CAR CO.

YONKERS, NEW YORK

NEW YORK CITY AGENCY:
MAXWELL-BRISCO, INC., 317 W. 59th Street.



Pungs-Finch Touring Car

Stands alone in its class. We are the only concern building a 4-cylinder bevel gear drive car at a moderate price who built and delivered a like model last season. This model has been thoroughly tested out by over a year's use on all kinds of roads in the hands of customers, and is in no sense an experiment.

4-Cylinder—22 H.P. Sliding Gear Transmission—Bevel Drive

MODEL D (Rear Entrance), **$1,700** **MODEL F** (Double Side Entrance), **$1,850**

Write to-day for full description

THE PUNGS-FINCH AUTO CO., Detroit

NEW YORK *C. A. Duerr Co.*
CHICAGO *The Wilson Motor Co.*
PHILADELPHIA *The Motor Shop*

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Model 27, Stanhope
Open or Victoria Top, Price $1,400

Many men buy a POPE-WAVERLEY ELECTRIC "for their wives," just as many men go to the circus "because the children want to go." They generally wind up by using and enjoying the Pope-Waverley as much as either wife or children.

In the gasoline field there is some latitude for investigation and comparison—in the electric field your choice is practically narrowed down to the Pope-Waverley, whose pre-eminence is absolute, unique and unquestioned.

The more you study the electric situation the more you'll feel like owning a Pope-Waverley—no matter whether you operate other cars or not.

Anyway you'd better write for the handsomely illustrated catalogue, which will give you a graphic idea of the infinite possibilities of the Pope-Waverley from the standpoint of both pleasure and utility.

We make Coupes, Chelseas, Surreys, Stanhopes, Station and Delivery Wagons. Prices $850 to $2,250. Also Trucks on specifications.

Write for complete catalogue and name of our agent nearest you.

POPE MOTOR CAR CO. = Indianapolis, Ind.

AWARDED GOLD MEDAL ST. LOUIS 1904

RED TOP RYE

AMERICA'S FINEST WHISKEY

PURITY
HEALTHFULNESS
BOUQUET

It's up to YOU

FERDINAND WESTHEIMER & SONS
CINCINNATI, O.
ST. JOSEPH, MO. LOUISVILLE, KY.

NEW YORK OFFICE
1358 BROADWAY

GREAT BARGAINS IN TIRES

We have succeeded in landing a fine lot of first grade tires and are offering them subject to the quantity on hand, at the following less than cost prices:

28x2½ in., single tube, 5 lugs, Our Own Brand, $12.50 each **28x3 in., single tube, 5 and 8 lugs, Our Own Brand, $16.50 each**
30x3 in., single tube, 8 lugs, Diamond Rubber Co., $20.00

Our stock of Lamps, Horns, Chains, Pumps, Coils, Plugs, and every other requisite is the finest in the country, and catalogue is free on application. If you want fine goods at low prfces, write us.

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type to take precedence over the service type, and the difficulty of the commercial-vehicle and truck problems is retarding the application of capital to its development. The service car, with its imperative demand for reliability, which shall put it in the class to which belong the watch, the locomotive, the steam fire engine, the big pump at the water works, and the ocean liner, has not come within the possible price limit, as long as the whole principle of the motor car is in its experimental stage. Money, brains, and time have to be expended to develop both the service car and the truck, and meanwhile the industry and the community must wait for them.

In the evolution of form it is plain that the first thinking of all designers was along the line of the existing vehicle, when they began to think of displacing the horse as a motor.

During a recent evening session of the New York Motor Club, it was the privilege of the writer to show lantern slides from early designs which were presented to the public, at the first New York Exposition of 1901. These types appear crude in the light of our present knowledge, but they were the result of the thought of the designer in utilizing the materials which he had at hand. He was not a carriage builder and he took what was given him. The form of those early days in this country was the runabout type, appearing either in the form of the accepted runabout or the buggy or stanhope or phaeton form. I think these early beginnings as respects form may be said to belong to "the cautious period." Caution was characteristic of:

(a) The buyer—he wanted small loss if the experiments failed.
(b) The builder—he wanted to put little money into his venture for fear he couldn't sell it to the cautious buyer.
(c) The operator—he did not want to be caught with a "car-load" or with more than one passenger with him in case the machine broke down and he could not get home.
(d) The passenger—he did not want to go fast because he was as yet untrained, and there was some risk of accident which he did not care to share.

It was unavoidable with the runabout design that the motor should be below the box of the body, and it necessarily therefore came between the axles with all inconvenience of inaccessibility and of inconvenient height for the body which diminished stability and increased leverage for strains.

The second form, which is the touring-car design, came to America from France. We should recognize our obligation for the body even if we think pretty well of our motor construction. The conditions leading to the touring party were the existence, in the older civilizations, at convenient riding distances from the centers of population, of attractive inns, to be reached over good roads, at which the French owner could invite parties to join him at dinner in the evening and return after dark. The necessity of attractive dressing for the passengers who were going out to dine has developed the luxurious body for that community. The United States is just beginning to develop this form of pleasurable sport. The road inn at which a critical dining party could secure in food or service what these French inns furnish, has a very narrow selection in this country from any of our cities. As a rule the approach to our important cities is not attractive and is not well maintained from the road user's point of view. With the coming of the motor car will arise country clubs and roadside inns in increasing numbers, and the enclosed car body will increase in use for those who desire to make such trips without having to undergo undue injury of handsome dresses by dust or passing shower.

I repeat, however, that the touring car is the car of luxury and therefore will be limited to the class which demands it. The features of the touring car period therefore may be said to be:

(a) A luxurious body.
(b) The long wheel base.
(c) The motor weight on a different axle and pair of springs from that on which the passenger weight is borne.

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A real automobile tire, not merely an enlarged bicycle tire, but a tire especially designed and constructed for automobiles and equipped with a fastening especially designed to stand the work of automobiles. You never hear of accidents due to *Fisk* Tires "creeping" or rolling off or blowing out of the rim. They simply can't do it. No one complains of pinched inner tubes from attaching or detaching the tire or from swinging around corners. Everybody can work the bolt and nut principle. That's easy. Some claim a tire never need be taken off the rim. Don't believe it. Punctures come to the just and unjust alike. Put yourself in a position to cope with all difficulties. Forewarned is forearmed. Fisk tires fill the space. Get our booklet.

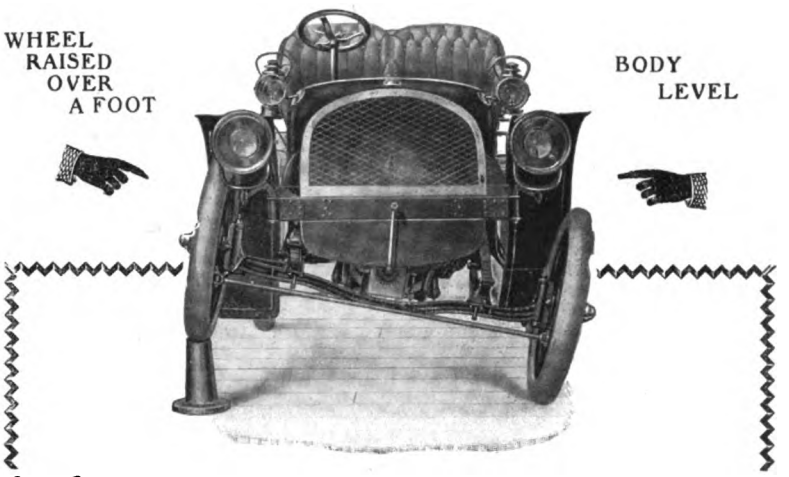
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Cast aluminum body on one frame, simple, accessible oil-tight mechanism on another frame, **each** suspended on three **pivotal** points. Eliminates the binding and twisting strains **inevitable** in the customary rigid four point suspension; hence means fewer parts, longer life and greater efficiency. The gentle sway of the Marmon body over the roughest roads is unknown in **any other car.**

Rigid shaft drive, without Cardan joints; quiet, unique, air-cooled motor; positive automatic force lubrication that absolutely marks the end of oil troubles. Booklet No. 4 describes it.

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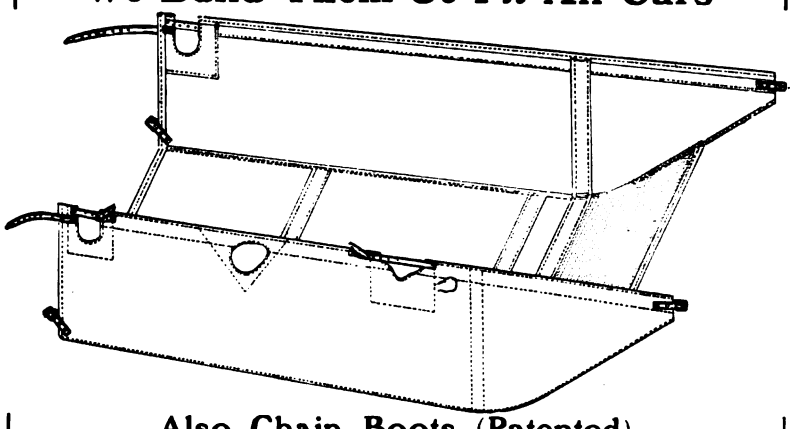
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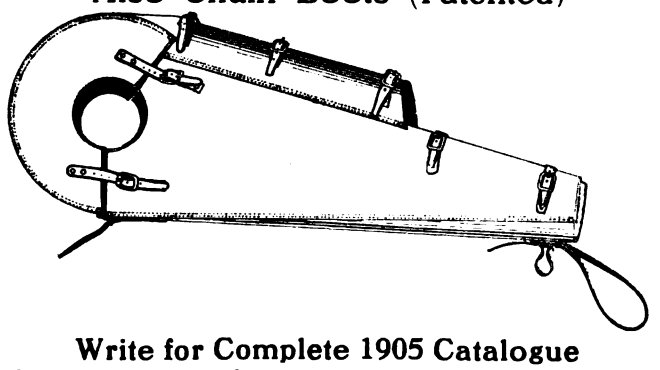
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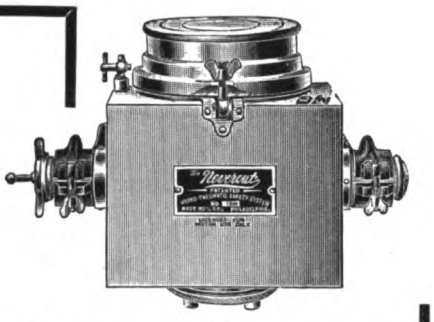
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No need to put up with the bother and waste of ordinary gas generators; nor with the expense and danger of gas confined under pressure.

The Neverout TRADE MARK

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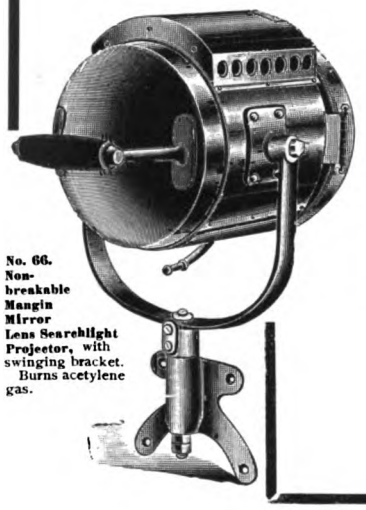
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(d) The motor not under the body but in front of it.

(e) The multiple cylinder, the vertical cylinder to secure balance, uniform turning effort, satisfactory enclosure of parts, uniform distribution of energy, less intensity to the exhaust, and therefore greater silence.

(f) The closed bottom to keep out dust and mud.

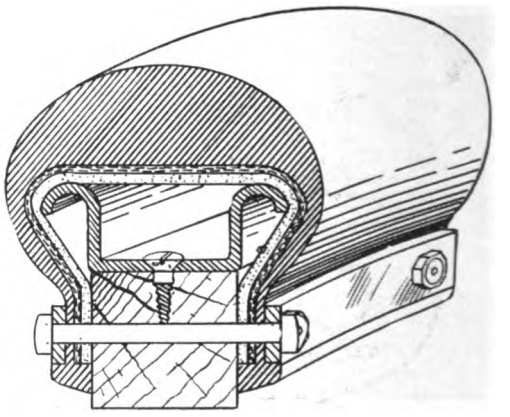
Did time and space permit, the evolution of the motor principle might be made a third direction of history and future progress. It is plain that the motor may belong to one of two classes.

The stored-energy class, in which from a central power station of some magnitude energy is generated, transmitted, and stored in manageable form so that such stored energy may be released from a reserve on the vehicle, and drive the proper motor. It is plain that the compressed-air and electric vehicle belong to this class and its advantages are those attaching to simplicity, cleanliness, and ease of operation. The equally apparent disadvantage is the limit set as to radius of operation by the capacity of the storage reserve.

The second class may be called the generating class, in which the power plant generating the necessary energy is carried by the vehicle itself, together with the fuel required to generate the power. This opens before the student the question of selecting the internal combustion type of motor where each stroke is made with the power generated for that stroke only, and on the other side the type in which the power is generated outside of the cylinder and stored in a vessel or reservoir from which the motor draws it on demand. These two types are plainly the competing types represented by the so-called gasoline motor on the one side and by the steam motor upon the other, and properly belong to a further discussion which opens up the engineering problems of the design of the motor car, as distinguished from the popular and obvious line of treatment which the foregoing discussion has presented.

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An interesting new tire for heavy vehicles is that pictured herewith. This tire is not pneumatic, nor is it of the ordinary cushion type, yet it secures a highly resilient effect by the novel plan of having a backing of stout leather, stretched over a metal channel. The leather is secured to the sides of the wheel felly by a series of bolts that pass through it, the felly, a pair of steel rings, and also the beads of the tire. The tire proper consists of several layers



A CROSS SECTION OF UNIVERSAL TIRE.

of fabric next to the leather, and a heavy tread of rubber, in some sizes three inches thick. This tire is, of course, puncture-proof, and it is said to possess resiliency and resist chipping to a marked degree. It is much lighter, moreover, than a solid tire of the same size, and being attached to the rim in as substantial a manner as the ordinary pneumatic, there is little likelihood of its being torn off by the stresses of hard service.

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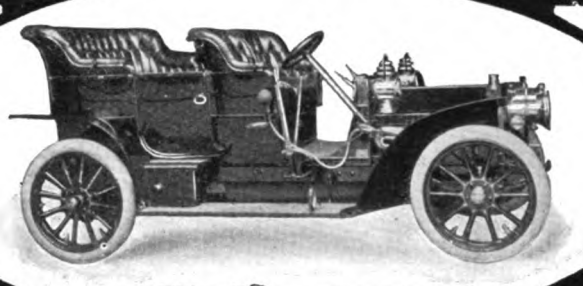
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18-22 horsepower
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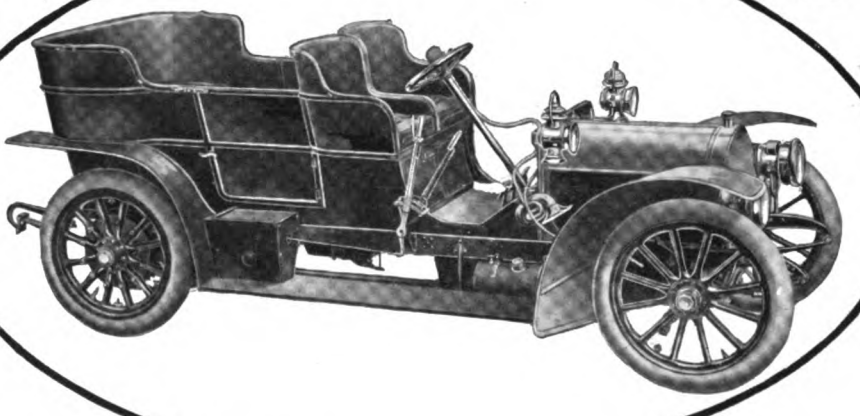
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MOTOR

THE RACING SEASON OPENS

(Continued from page 45)

promised such an aggregation of speed-monsters. These are: E. H. R. Green's Franklin, H. L. Bowden's *Flying Dutchman* (Mercedes), H. W. Fletcher's de Dietrich, Oldfield's *Green Dragon,* Webb Jay's White steamer, the *Reo Bird,* the *Lightning Bug,* the Decauville, the Pope-Toledo, the new Locomobile, the FIAT, the Renault, and many others not yet heard from definitely. It is safe to predict that the majority, if not practically all, the extant track records will be eclipsed by these space-devourers and others that, no doubt, are on the way.

Many of the racing cars which will hold the limelight this season were at Morris Park. This drew to the grandstand a gala gathering of speed-loving motorists, of the "fair and unfair" sexes. A number of cars hitherto entirely unknown to track-racing fame in the vicinity of the metropolis made their débuts. The program arranged for the meet at Morris Park on May 20 included the following:

Corinthian Mile (all classes).—Cars to be driven by owners who must be amateurs, as defined by the A. A. A. racing rules. Prize, trophy, value, $100.

The Flying Mile.—Exhibition by Barney Oldfield, champion track driver of the world, to beat his own world's record of 53 seconds; trials also by Mercedes, FIAT, White, and Christie.

Two Miles.—Middleweight class; for cars weighing between 881 and 1,432 pounds. First prize, trophy, value, $100.

Three Miles.—Free for all. First prize, trophy, value, $100; second prize, trophy, value, $50.

Three Miles.—For touring cars of 30-H. P. and less (equipped per catalogue specifications, except that lamps, basket tops, mud guards and mufflers need not be carried), each car carrying three passengers in addition to the driver. Cars to line up with dead engines and all passengers aboard; at starter's pistol, engines to be started; at judges' stand passengers must be unloaded, and the cars must make another circuit of the track; at judges' stand cars must stop, passengers be taken aboard and the three miles completed. First prize, trophy, value, $100; second prize, trophy, value $40.

Match race between Barney Oldfield in the Peerless *Green Dragon* and Charles Basle in H. L. Bowden's *Flying Dutchman.* Distance, 5.56 miles.

Five Miles.—Morris Park Handicap (all classes) (Barney Oldfield barred). First prize, trophy, value, $100; second prize, trophy, value, $40.

THE MOTOR-CAR RACING SUPPLEMENT

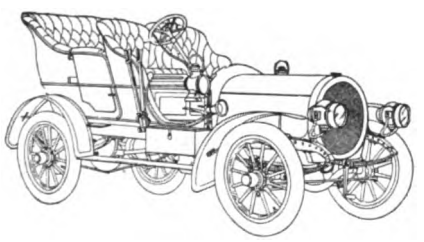
The supplement with this issue of MOTOR gives the motorist interested in racing the latest records to and including the Morris Park race meet of the American Automobile Association. This table of records contains not only track records but also the straight-away records made at Ormond, Fla., during January of this year.

The table also contains the records which are not generally accepted as "official" world's records, such as, for example, Bowden's *Flying Dutchman* mile in 32 4-5 seconds, the car being practically in a class by itself.



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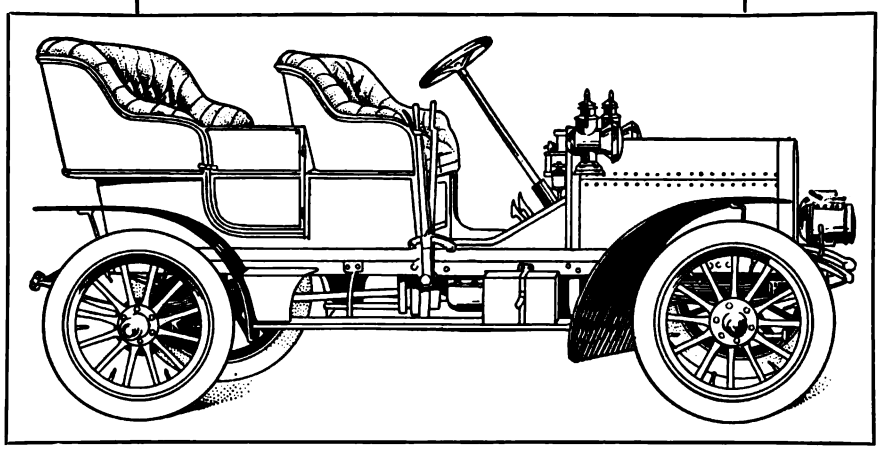
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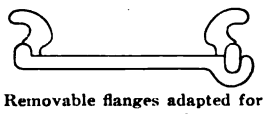
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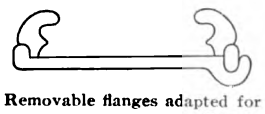
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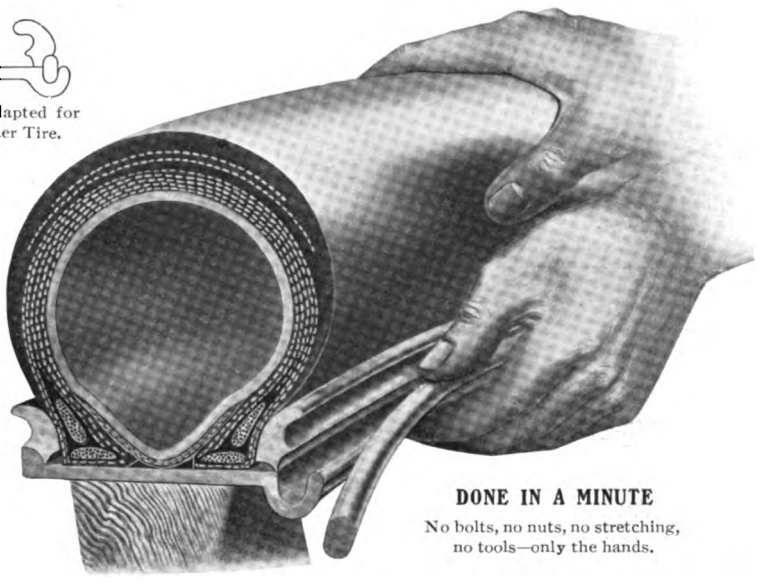


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WITH A MOTOR BOAT IN THE ANTILLES

(Continued from page 33)

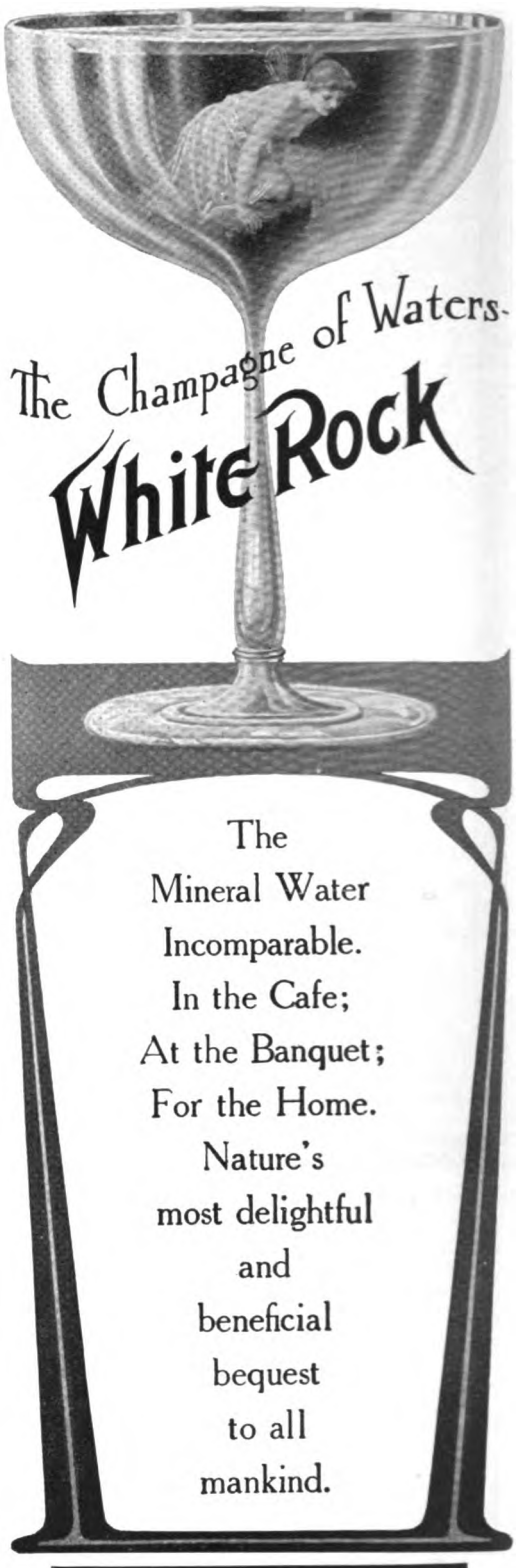
per annum. Our stay at Kingston had to be considerably curtailed owing to the lateness of the season, and we pushed onward, skirting the coast of the island eastwardly, and, rounding South East Point, headed due north for Santiago de Cuba, which the "smashing" of Cervera's fleet made famous but a few years ago. The approach from the sea to the harbor of Santiago was indeed a very beautiful one. The deep, rich, tropical color became deeper and richer as we drew shoreward, and the arms of the bay seemed to be closing in about us. Ahead was the narrow opening where Hobson sank the Merrimac in an effort to block the harbor against the exit of the Spanish men-o'-war. Towering above this was Morro Castle, the grimness of which was softened by the distant aspect. We did not stop long in this Cuban city, and, after an afternoon and an evening wandering sightseeing about it and in its immediate vicinity, we returned to our boat and in the morning put out to sea again on our way along the coast through Windward Passage, lying



between Hayti and Cuba, and then veered northwesterly on to Havana. Time being short, we were unable to make any landings at Cardenas or Matanzas, where we had intended going ashore if only for a few hours in each place.

What need of dilating upon our single day in Havana? It is well known to Americans. Indeed, many of our citizens through enterprise and energy are prime factors in building for the city slowly but surely a commercial reputation. Of our trip to Tampa, passing Key West en route, little further can be said than it was pleasant sailing with a clear blue sky and replete with still further discourses on the part of Sir Frederick on the possessions of the British Crown among the Antilles.

At Tampa Sir Frederick and I parted company, I being called away northward. The recollections of this trip will always remain with me as a delightful one in every respect. It is one that I can heartily recommend.



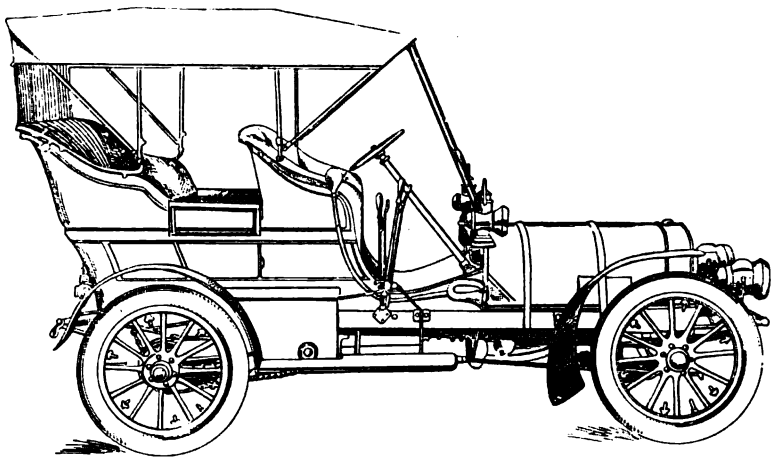
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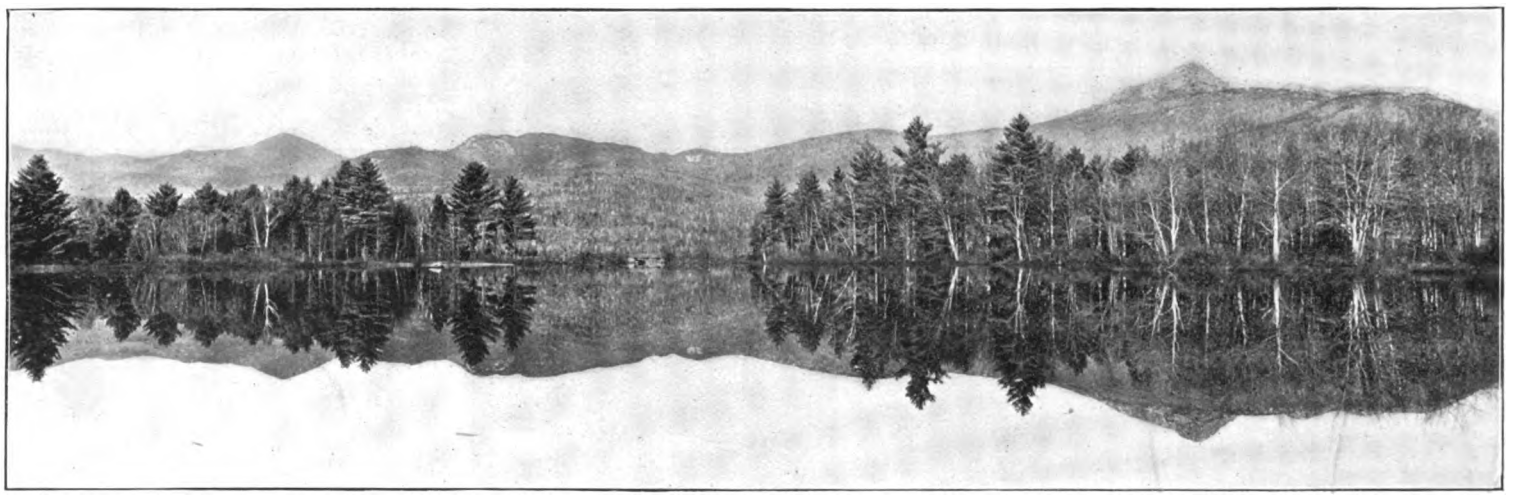
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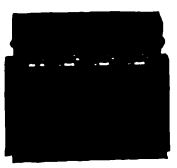
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PURSUIT OF A ROAD HOG

(Continued from page 59)

She meant to say "kill you," but tears came instead of words, and Betty sat down on the roadside, sobbing piteously.

With tact that cost him much, Cunningham drew Algy round the corner by a limp arm.

"Light that!" he said, peremptorily, pressing a cigarette upon his late antagonist, "and tell me what on earth it all means. She might have been killed, by Jove, with your fool's driving——"

"She would have it," said Mr. Shaftly, doing as he was told, and speaking in a dull, mechanical way. "You charged by her dogcart on the Rentol Road, and upset that and nearly killed her there, and then she would insist on going after you. Wanted me to horsewhip you, you know."

Cunningham extracted the whole story before he said: "I have never been on the Rentol Road. I've come from Fairley this afternoon direct—I give you my word for that. It must have been some one else who passed her, I say." The sobs had ceased. Cunningham spoke eagerly, "You'd better go round and see how she is. Tell her what I've said. I wouldn't do such a thing for—well, anything. And say my car is at her service—you can drive her back in it. Or perhaps it would be better if I drove her. You're a bit shaken still. You get a trap at the inn. What do you say to some tea first? Ask her. She ought to have something. She'll faint if she doesn't."

"I doubt if she'd care to drive back in your car. She hates 'em," said Algy.

Nevertheless, an hour later, Miss Betty Welford was being driven back in Cunningham's car by Cunningham himself, enjoying a perfect summer evening in the most natural manner. A fear that her parents would be anxious about her prolonged absence had prompted her to accept this—decidedly the quickest means of conveyance. A desire to atone to Cunningham for her unjust suspicions had something to do with it, of course. Also—but if one begins to analyze a young woman's motives there is no end to it. Cunningham did not attempt to. He merely reflected upon the way things work. He might have been driving Mr. Shaftly as well if he had not always held out against a spider seat.

NORTHERN CALIFORNIA FOR MOTORISTS

Dear Sir: There is an article in MOTOR for March, 1905, on page 51, together with a map of the country between San Francisco and Los Angeles, which is misleading in that it ignores any mention of the greater California north of San Francisco. In the great valley of the Sacramento River are the very best roads for motoring in the state. There, also, is the broadest and longest expanse of level land in the state. It is said that Yolo county has the very best roads in California. The major portion of Solano, Yolo, Colusa, Bute, Sacramento, Glen, Sutter, and Tehama counties are in the Sacramento Valley, and there are several other counties which are partly in this great valley. The scenic beauty of any portion of this vast area is finer than that of any other section of California. To the east, the snowy crest of the Sierra Nevada mountains can be seen at all seasons. To the west, the Blue Coast Range runs parallel with, and forms the western boundary of, the valley. This wide expanse of level land is a vast sea of grain fields, and along the margin of the streams, such as the Rio De Los Putos, Cache Creek, and Yuba, Feather, and Sacramento rivers, are green fields of alfalfa. In western Solano and Yolo counties is the deciduous fruit belt, where such fruits ripen earlier than anywhere in the United States. Nearly all the main roads in this great valley have been graded, and hundreds of miles of highways have been oiled and furnish the very best motoring.

Yours,

F. M. WYATT.

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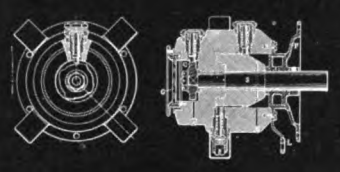
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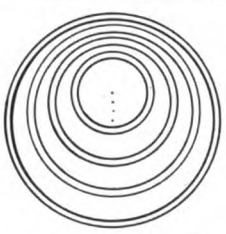
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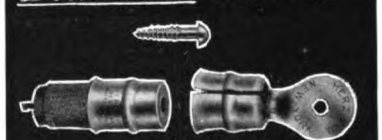
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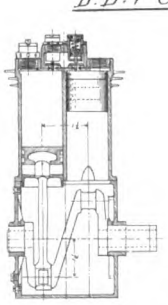


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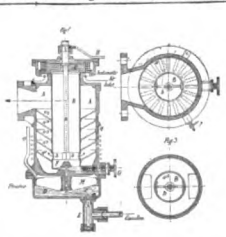
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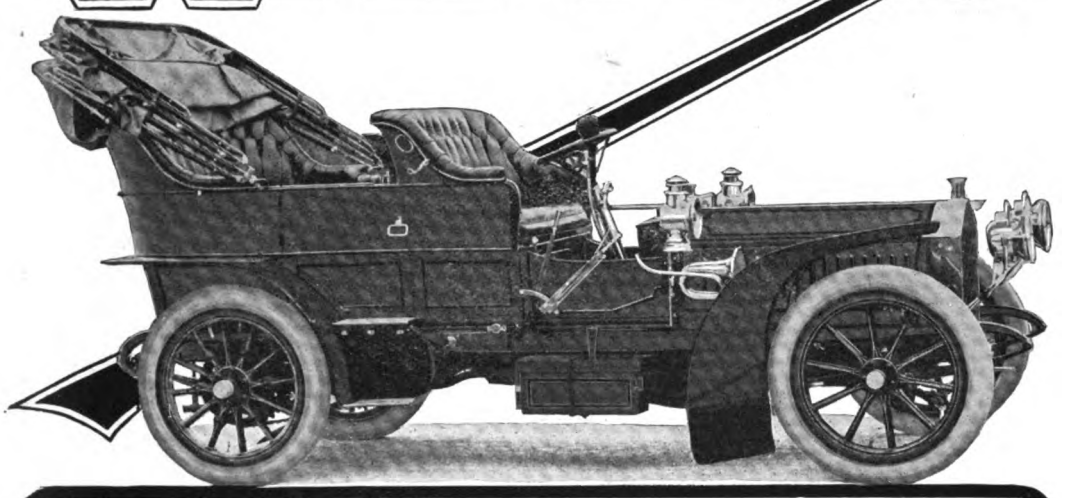
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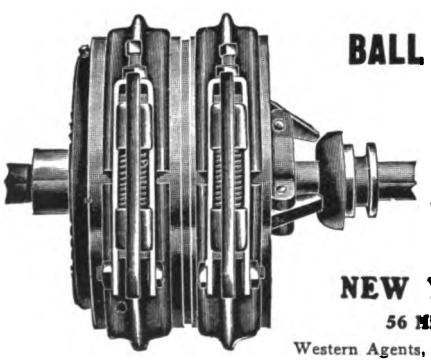
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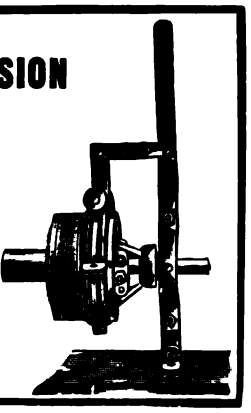
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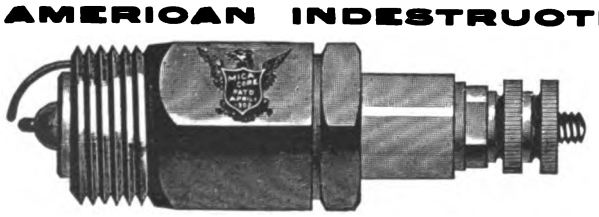
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BOOKS ABOUT MOTORING

"The Complete Motorist," a notable contribution to motoring literature, of recent publication, by A. B. Filson-Young, has gone into another edition. The publishers have been compelled, owing to the continuous call for this altogether interesting and novel volume, to send to England for a considerably larger importation of sheets for the new edition than heretofore, to meet the increasing demand.

Of real motoring literature—the kind that one reads because it is entertaining and not because it is of an unusual subject—there is a dearth; but in "The Complete Motorist" we have a book that in every way deserves to be given a place with any of the most popular books of the day. McClure, Phillips & Co., of New York City, are the American publishers.

The second edition of "The Handbook of Gasoline Automobiles," published by the Association of Licensed Automobile Manufacturers, is very much larger than the edition of last year. The first edition was more or less an experiment, which, however, proved to be a decided success. Thousands of copies of the book were distributed throughout the United States, Canada, Mexico, even going into Europe and into South America; and the demand naturally has arisen for a similar, revised, and up-to-date edition of the same work. This the Licensed Association has supplied with remarkable success—the book being increased to about 130 pages, and has considerably more matter than the preceding edition. In addition to the pictures of the cars, the specifications of all are given, so that a prospective purchaser has full data on which to base a possible purchase.

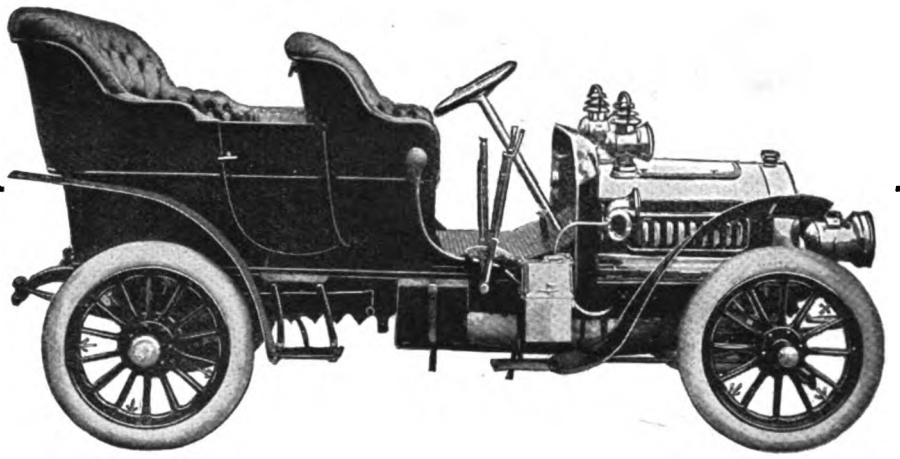
Messrs. Dodd, Mead & Co., of New York, recently issued a little volume, the utility of which for motorists will undoubtedly make its appeal. It is a motoring diary. It is by name "My Automobile"—a volume in which a motorist may record such things of pertinent interest to him and his motor car as he wishes. To quote from an introductory note in this volume, "Dates, runs, time, distances, weather, roads, cost of repairs, fuel, entertaining, etc., are not always easily remembered. Therefore, this little book to slip into one's pocket has been designed, in which can be jotted down the record of each run." Having this volume and making conscientious use of it, one need not trust to memory to recall any particular of a run he may have made. The motorist likes to be able to look back upon a tour that he accomplished, we will say, last month, and recall the pleasant details of a delightful day, who his guests were, and—a not unimportant detail—the time consumed in covering a certain distance, the condition of the roads met with, the distance covered, and such other information as collectively is of much use and interest to the touring motorist. This handy little book is very neatly bound in limp cloth, of a size to fit the pocket, and is issued by the publishers, Dodd, Mead & Co., of New York City, at $1 net.

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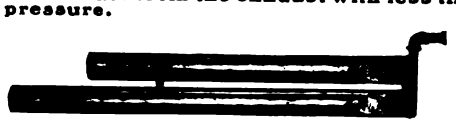
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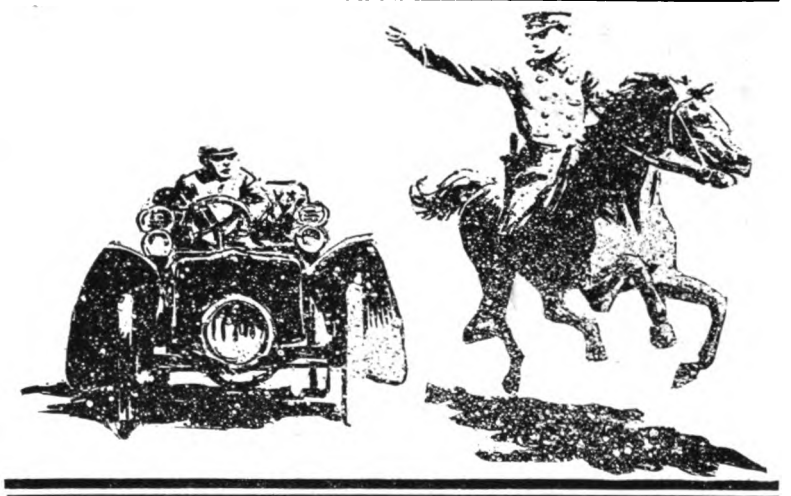
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TO escape this cry and the troubles which follow, use a Jones Speedometer. It will keep you constantly and correctly informed of your speed and enable you at all times to keep within the limit.

THE accuracy of this instrument is attained by the mechanically perfect application of an absolutely unchangeable law. Its standard of perfection will never be equalled by devices based on theories, the practical application of which is so impossible that they were discarded in the development of the Jones Speedometer.

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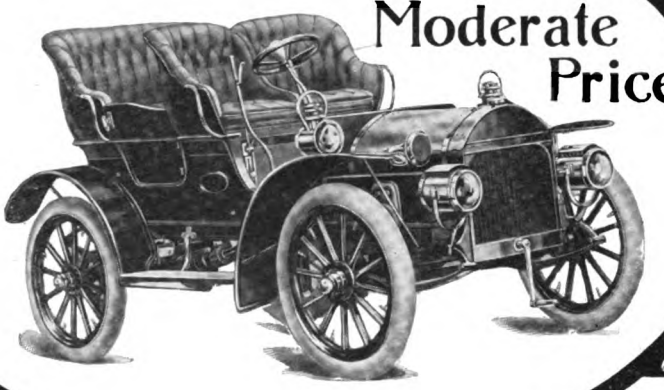
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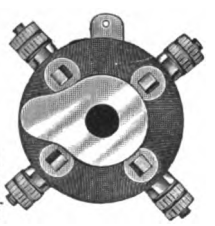
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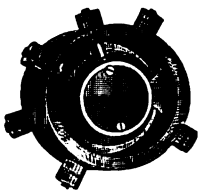
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MOTOR CALENDAR

JUNE

JUNE 3	Power Boat Regatta, Columbia Yacht Club
JUNE 7	New York Motor Club's Orphans' Parade
JUNE 10	Morris Park Race Meet
JUNE 16	French Eliminating Trials for Gordon Bennett Race, France
JUNE 16, 17	Race Meet, Hartford, Conn.
JUNE 17	Empire City Race Meet
JUNE 18	International Motorcycle Cup Race
JUNE 22 to 30	Motor-Boat Races, Kiel, Germany
JUNE 24	Brighton Beach Race Meet
JUNE 26	Hill Climb, Mont Cenis, France

JULY

JULY 2 to 10	Motor Show and Motor-Boat Races, Rouen, France
JULY 4	Morris Park Race Meet
JULY 4, 27, 28, 29	Motor-Boat Races, Eastern Yacht Club
JULY 5	Gordon Bennett Race, Auvergne Circuit, France
JULY 6 and 8	Races, St. Paul Automobile Club
JULY 8	Empire City Race Meet
JULY 8 and 9	Hill Climb, Mont Ventoux, France
JULY 10 to 15	White Mountain Hill Climb
JULY 11	Start for Glidden Trophy, New York City
JULY 11 to 16	Hill Climb, Mont Cenis, France
JULY 14 to 28	Motor-Boat Trials, Southampton, England
JULY 15	Morris Park Race Meet
JULY 15	Motor-Boat Contest, Calais to Dover
JULY 15 to 25	Races and Trials, Ostend, Belgium
JULY 19, 20 and 21	Speed Trials, Brighton, England
JULY 22	Empire City Race Meet
JULY 22	Motor-Boat Races, Brighton, England
JULY 29	Morris Park Race Meet
JULY 30	Circuit des Ardennes, France

AUGUST

AUG. 1 to 7	Motor-Boat Races, Rouen to Trouville, France
AUG. 5	Brighton Beach Race Meet
AUG. 6 to 9	Motor-Boat Race, Paris-Trouville, France
AUG. 10	Motor-Boat Race for Gaston Menier Cup, Trouville, France
AUG. 11	Motor-Boat Race for Drexel Trophy, Trouville, France
AUG. 12	International Cup Race for Motor Boats
AUG. 12	Morris Park Race Meet
AUG. 14 to 19	1,000-Mile Motorcycle Endurance Run, London, England
AUG. 18 and 26	Motor-Boat Races, Eastern Yacht Club
AUG. 19	Brighton Beach Race Meet
AUG. 19	Commercial-Vehicle Trials, London, England
AUG. 19	Motor-Boat Cruise, Albany, N. Y., to St. Lawrence River
AUG. 20	British International Cup Race
AUG. 24, 25 and 26	Motor-Boat Races for American Power-Boat Association Challenge Cup, Chippewa Bay
AUG. 26	Empire City Race Meet
AUG.	Herkomer Cup Race, Germany

SEPTEMBER

SEPT. 1	Motor-Boat Meet, Lake Geneva, Switzerland
SEPT. 2	Motor-Boat Races, Eastern Yacht Club
SEPT. 4	Brighton Beach Race Meet
SEPT. 4, 6, 9	National Motor-Boat Carnival, New York City
SEPT. 9	Morris Park Race Meet
SEPT. 11	Motor-Boat Race for Harmsworth Cup, England
SEPT. 12 to 14	Motor-Boat Meet, Lake Lucerne, Switzerland
SEPT. 14	Race for Touring Cars, Isle of Man
SEPT. 16	Empire City Race Meet
SEPT.	Touring-Car Trials, Paris, France
SEPT.	Motor-Car Meet, Brescia, Italy
SEPT. 18 to OCT. 3	Reliability Trials, London, England
SEPT. 21	International Pike's Peak Climb, Colorado
SEPT. 23	Morris Park Race Meet
SEPT. 30	Empire City Race Meet

OCTOBER

OCT. 7	Brighton Beach Race Meet
OCT. 14	Morris Park Race Meet
OCT. 21	Empire City Race Meet
OCT. 28	Brighton Beach Race Meet
OCT.	Hill Climb, Chateau-Thierry, France
OCT.	Hill Climb, Gaillon, France

NOVEMBER

NOV. 17 to 25	Motor Show, Olympia, London, England

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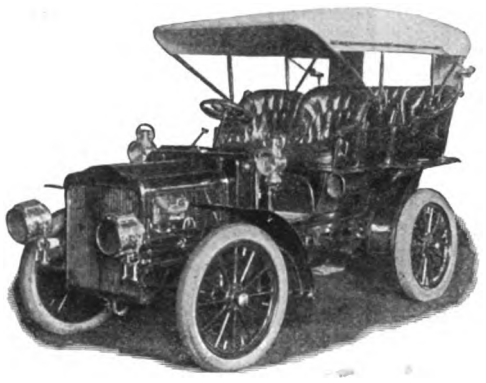
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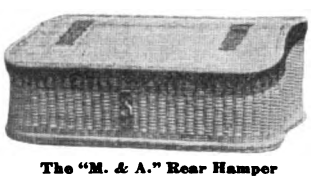
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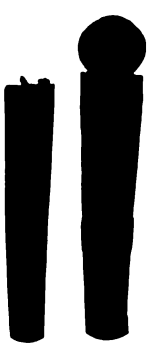
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A TRANS-CONTINENTAL RACE

On Monday, May 8, two Oldsmobiles started on a race to Portland, Ore., and the Lewis and Clark Exposition. Both of the cars were named, "Old Scout" being driven by Dwight B. Huss and Milford Wigle, and "Old Steady" by Percy Megargle and B. Stanchfield. The first car arriving at the convention of the National Good Roads Association, which will be in session in



DWIGHT B. HUSS AND MILFORD WIGLE IN "OLD SCOUT"

the auditorium of the exposition, will receive a prize of $1,000. The entire trip will be of about 3,500 miles along the line of the New York Central Railroad to Chicago, thence through Omaha along the Rock Island line to the Union Pacific road, near which the cars purpose to keep as far as the coast. The transcontinentalists will encounter the real hardships



PERCY MEGARGLE AND B. STANCHFIELD IN "OLD STEADY"

of their trip when they have passed the Upper Mississippi. This is the first time that a transcontinental trip has been attempted from the Atlantic westward. Several successful attempts have been made, traveling eastward, the most recent of which was the Whitman-Franklin trip.

WINTON'S FIRST BICYCLE

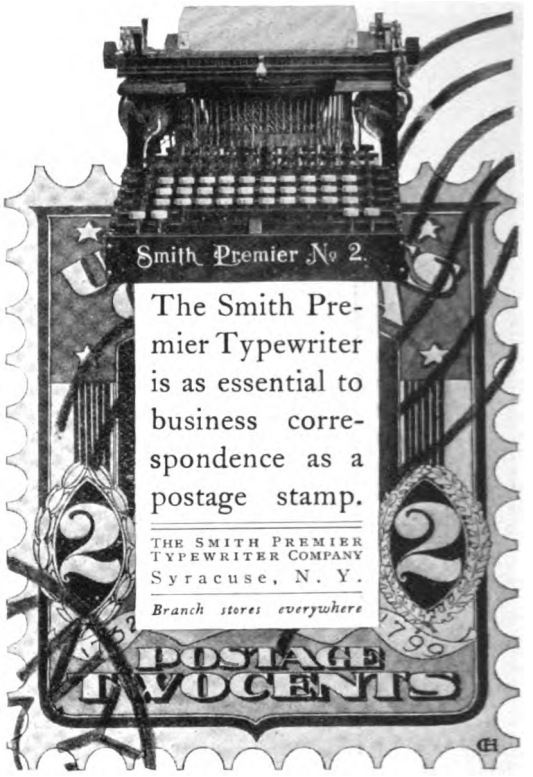
This story is told by Arthur La Vigne, a Californian:

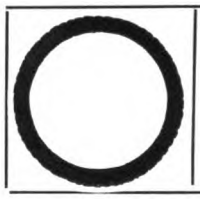
In San Diego, Cal., lives a man, Frank W. Barr by name, who claims to have ridden the first bicycle ever made by Alexander Winton.

One day while in Cleveland, Ohio, Mr. Barr left an old bicycle standing by the curb, and it was broken by a runaway horse. As he was viewing the remains he was accosted by Mr. Winton, who asked him what was the matter. Mr. Barr showed Mr. Winton the wrecked bicycle, and Mr. Winton told him to take and try the bicycle that he (Winton) had just finished and if it suited they would make a dicker in regard to the price. Mr. Barr was working in the City Engineer's office at the time, and six of the men in the office with him secured bicycles like his from Mr. Winton.

When Mr. Barr took the wheel to try it Mr. Winton told him that it was the first one that he had ever made. Mr. Barr says that the wheel gave perfect satisfaction.

It is interesting to think of the advances made by Mr. Winton since that time in the motor-car line, and, when one considers how few are the years that really have elapsed since the motor car was looked upon as the particular insanity of a few fool inventors, and the hobby of a few enthusiasts, the tremendous present-day development is rendered all the more marvelous by the comparison. It takes an occasional contrast of things of the present to things of the past, to keep the world awake to the progress it is making.





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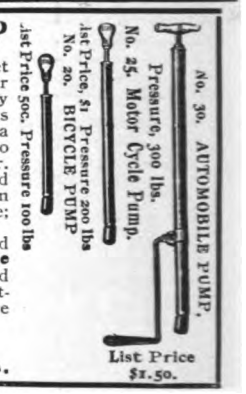
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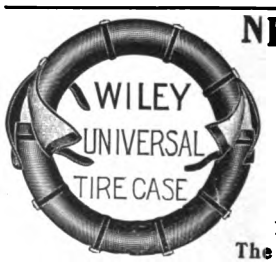
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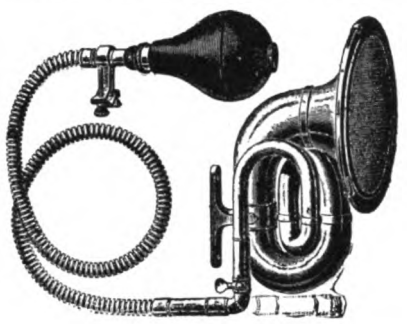
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Diameter of Bell, 6¼ ins., fitted with 40 in. tubing

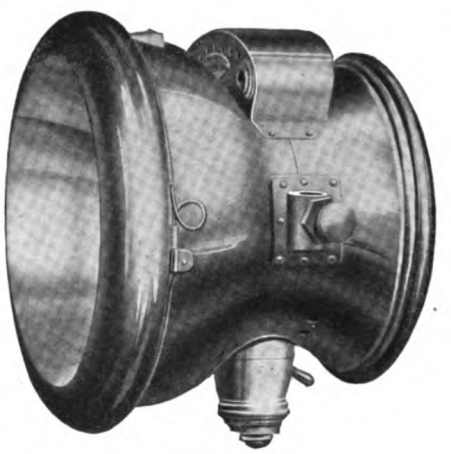
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They will strengthen your machine and make your old car look like an up-to-date model.

They will not rust, shrink or break, neither will the spokes loosen up or snap out.

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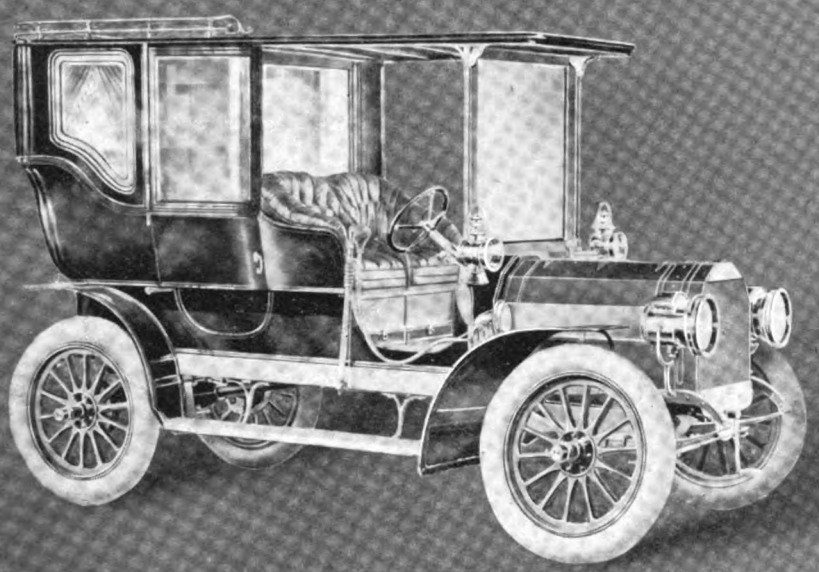
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¶ Years of continued use have failed to show the need of any material changes in the Welch mechanism. Its marvelous 4-cylinder motor gives speeds varying from 4 to 50 miles on the direct drive.

¶ Complete and detailed information will be gladly sent on request.

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THE START IN RACING

Starting in athletic contests has been found to be the one element determining ultimate results, and to contain within itself the problem of victory or defeat. In motor racing, where records are measured by fractions of a second, it may soon be the same. So important, indeed, is the perfect start in foot races that special practice in every detail of the various methods of getting off the mark on the snap of the pistol, has become a recognized necessity. The new racing rules of the American Automobile Association make it clear that a like knowledge of varying conditions, and a like skill, will be necessary in motor racing, for they define three kinds of starts, any one of which may be used, if so previously announced, and all of which may be brought into operation in separate races on one day. The three starts are the standing start, the moving start, and the flying start. In the first, the car must be stationary with its front wheels on the tape until given the word or signal to go. In the second, the car must start at a point between two and three hundred yards back of the tape. the pace from this point to the tape must be taken from the pole, or inside car. In the third, a car may start at any distance back of the tape and cross the tape at the highest possible speed. This method of starting, however, is restricted to a single car, running for a record, or on a time trial.

There is yet further need of educating the drivers' senses of eye and ear, for the start may be signalled in any one of three ways; i.e., by word of mouth, by the dropping of a flag, or by firing a pistol, and any one who has participated in racing events knows the value of training in detecting the exact moment of any of these signals. A second or more may easily be gained by familiarity with all three methods, and a second, or even less, at the other end of the course is often the measure of winning or losing.

WHERE THE MONEY GOES THAT NEED NOT

Much good American money goes into the pockets of foreign hotel keepers which would remain at home if we had as good roads as our thrifty neighbors across the sea. Every day the news wafts back to us that some well-known American motorists, like Mr. and Mrs. Cornelius Vanderbilt, are on an extensive motor tour in Europe, or Mr. and Mrs. J. C. Osgood left "Claridges" in their motor car by way of Folkestone for a long tour in France, Mr. and Mrs. Charles F. Robinson left London in their new 45-horsepower Mercedes for a two-weeks' trip in France, Mr. and Mrs. Walter Watson and Mr. Frank Dick arrived in London, having come over from Paris via Havre and Southampton in their motor. We could multiply these items by scores, and the pity of this is, if these wealthy motorists remained at home, they could not tour two days, or even one, unless they selected some special road near by, out and home. The time when one will be able to be sure of good roads, say from Washington via New York up the Hudson, across by Lake Champlain, down the St. Lawrence to Montreal and Quebec and home through Maine, will see the tide of touring money turn homewards. If nothing else will appeal to the up-state road authorities, the golden harvest they are forcing to find other pockets to empty into, ought to touch them.

Or the great national highway—why not that? From any point on the Atlantic coast to the Pacific ocean by motor car, or in the opposite direction, is a tour that every American and many Europeans would like to "do," but which is, for all practical motoring purposes, an absolute impossibility. The transcontinental trips that have been made are regarded as freak performances and records, such as no sane motorist would attempt. More good roads would hold more money at home, which now goes abroad.

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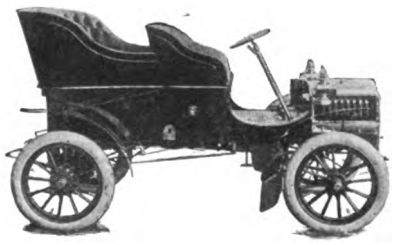
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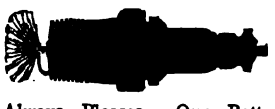
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What a dismal sight is an old, silted-up, weed-grown canal, out of use! I saw one a little time back. You could see the forlorn strip of wastefulness stretching in either direction as far as the eye could follow it. Here and there a riparian owner had planted corn in it; here and there it was a quagmire, foul with stagnant ooze, the prolific birthplace of the mosquito; here and there it was thick with thistles which all the neighborhood anathematized when they cast their seeds upon the wind and spread their useless progeny far and wide, a pestiferous nuisance. That is exactly what all strips of unused canals are, and there are collectively many hundreds of miles of them, all leading from one important populous center to another, for in the days before the railroads they were the merchandise routes along the lines of least resistance, and the whole state developed along their route, just as the Mohawk Valley did. Subsequently, other towns and districts were brought within the pale of profitable occupation by the railroads, yet it remains true that the canal route still joins important business centers, although it is only a streak of apparently worthless mud on the map. It always appears to me to be a shameful waste of opportunity that railroad companies, which in most cases have acquired the control of these canals and left them to perish of dry rot, should sit like "dogs i' the manger" whilst the sites of the canals, if they were drained and the locks filled up, where nature has not already performed that operation, would make the finest motor routes in the world. Restricted to motor traffic, there need be no limitations of speed upon them, or the type of motors on them. So used, they would again become arteries of trade and restore again to life and usefulness many thousands of acres of land and industries which were crippled by the passing away of the old canal boat. It would be a useful work for the Agricultural Department of the Federal Government to start an exhaustive examination of the conditions of all the unused canal routes of the country and an investigation into the charter rights and ownerships of them. Many a curious phenomenon would be brought to light, and, maybe, many a charter found to be forfeited. If not that, still the examination and survey would give invaluable data for the possibilities of hundreds upon hundreds of miles of exclusive motor roads, at easy gradients, and on which all the expensive engineering had been done a century back. C. Q. T.

THE GROWTH OF LOCAL ASSOCIATIONS

Time was, and that not so very long ago, when the metropolis was the only place where motorists felt the need of association; 'tis not so now. In every part of the country, localities, cities, or states have found the need and advantage of concentrating their forces, both for social purposes and for using their influence in obtaining recognition, justice, good laws, and good roads. In the state of New York alone there are ten local associations, one in each of the cities of Albany, Auburn, Buffalo, Herkimer, Hudson, Oneida, Rochester, Richmond County, Syracuse, and Troy; each with a full roster of enthusiastic motorists. It is the same with other states in similar proportions, Ohio, New Jersey, Georgia, Maryland, Massachusetts, Illinois, Pennsylvania, Connecticut, Iowa, Florida, Colorado, Michigan, Oklahoma, New Hampshire, Texas, Indiana, Missouri, California, Kentucky, Wisconsin, Minnesota, Louisiana, Nebraska, Utah, Rhode Island, Maine, Vermont, Kansas, West Virginia, and the District of Columbia, each have their quota of the devotees of the motor car associated together; and the cry is still they come, a healthy sign that motoring has taken deep and wide root.

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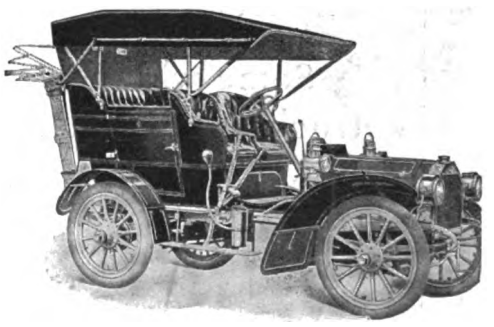
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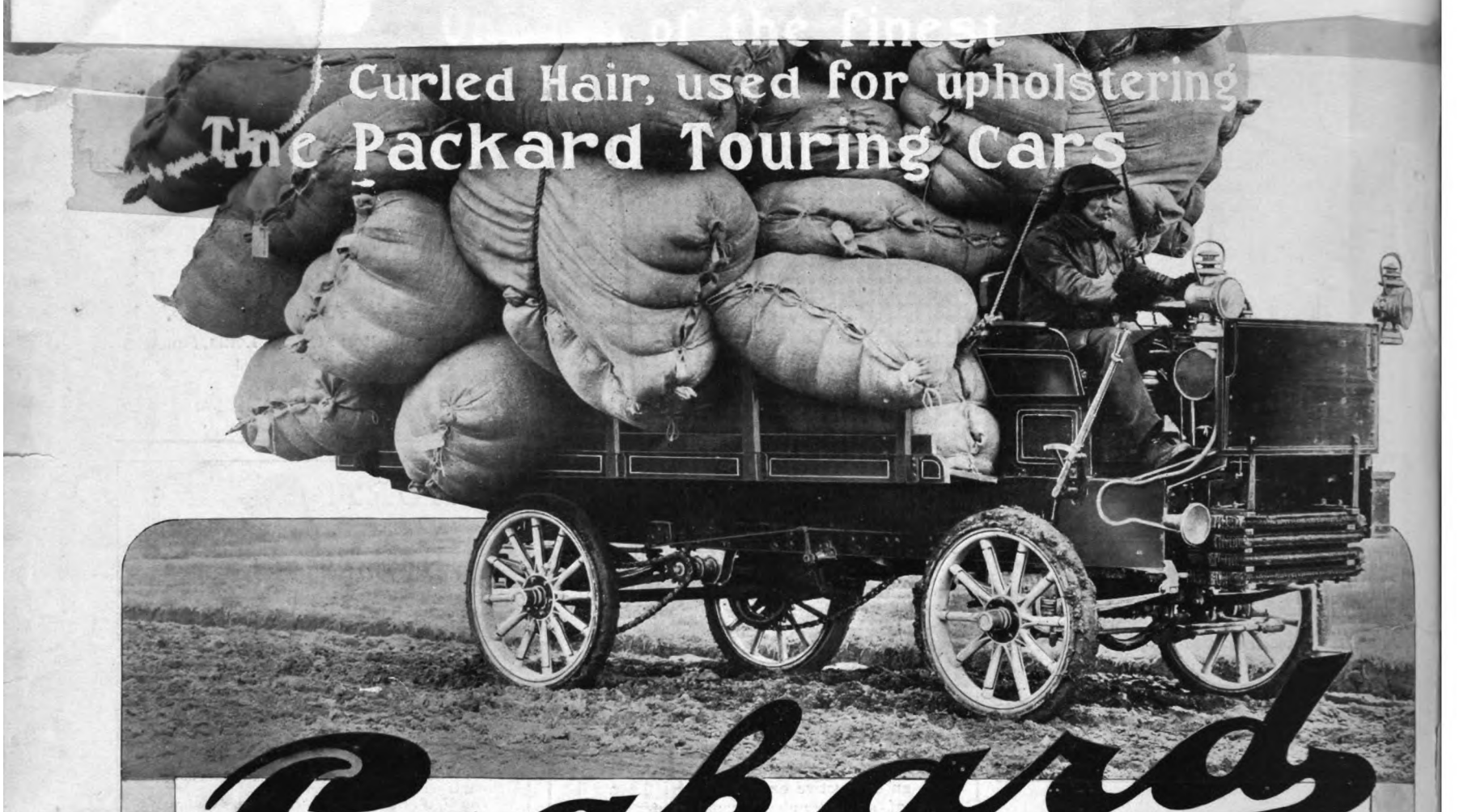
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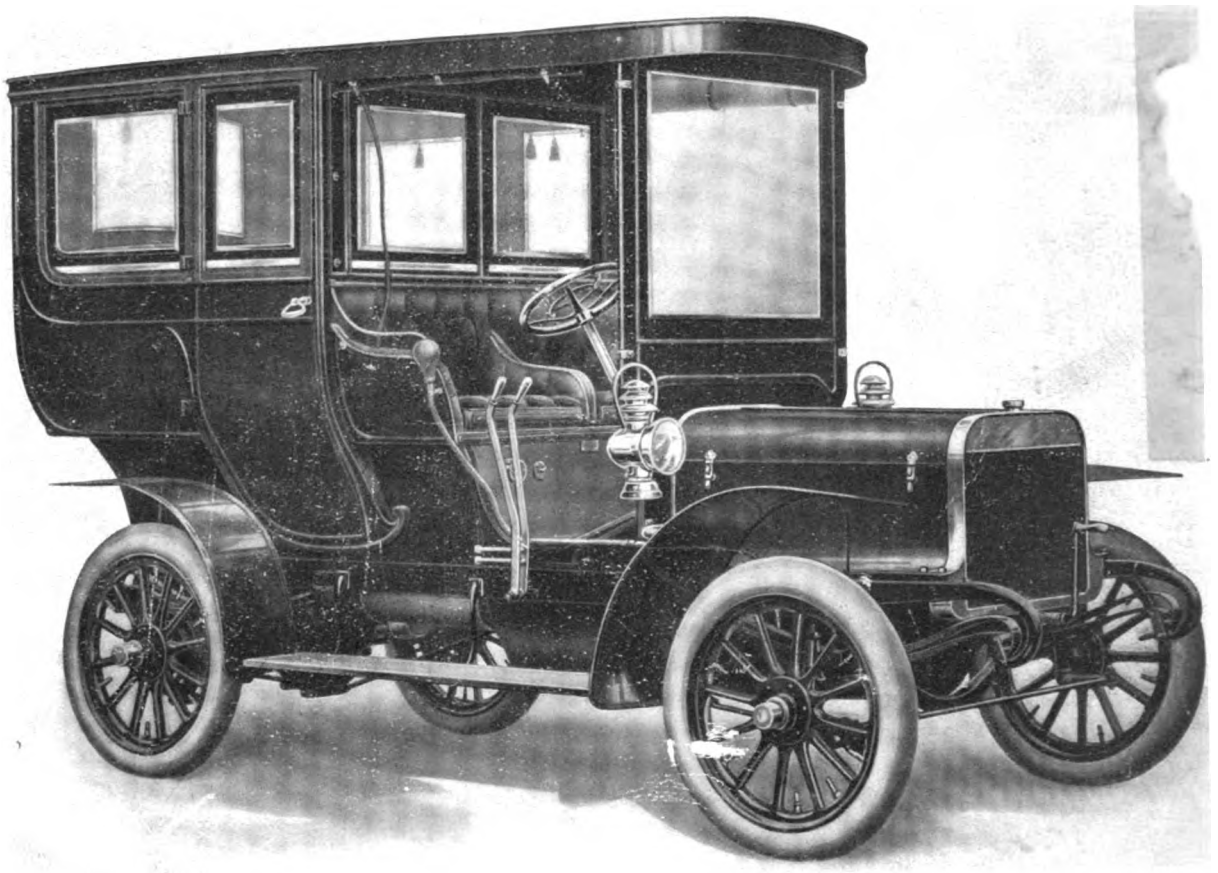
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